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Guide for Preparing RCRA Resource Conservation and Recovery Act) Permit Applications for Existing Storage Facilities

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The purpose of this preliminary guidance document is to assist the owners and operators of hazardous waste management facilities in the preparation of their RCRA Permit Applications. Its intent is to provide sufficient information and detail to enable a facility to submit an applicantion; however, in some situations, certain regulations may not apply to every facility.

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A GUIDE FOR PREPARING RCRA PERMIT APPLICATIONS FOR EXISTING STORAGE FACILITIES

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A GUIDE FOR PREPARING RCRA STORAGE PERMIT APPLICATIONS

NOTE This preliminary guidance document is intended to assist the owner or operators of hazardous waste storage facilities in developing RCRA Part B Permit Applications. It is being distributed to prospective permit applicants and others for their review, comment and use. EPA is interested in receiving comments on the usefulness of the guide and suggestions as to how it may be improved. It was developed by a contractor in concert with EPA permit writers in Region I and Headquarters but has not yet been reviewed by applicants or other persons outside the Agency.

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1982

DISCLAIMER

This Industry Guidance Document has been developed to assist hazardous waste storage facilities in preparing Part B of the RCRA Permit Application. It is intended that permit applicants will use the document as a guide to prepare their own applications in a format and level of detail acceptable to the U.S. Environmental Protection Agency. The model permit application contained in the document was developed for a typical representative storage facility. Therefore, some sections of the model may not be applicable to all facilities. The U.S. EPA urges applicants to contact their EPA Regional Office to discuss the applicability of this guide to their facility and other facility-specific requirements.

PREFACE

The purpose of this guide is to assist hazardous waste management facilities in the preparation of their RCRA Permit Applications. Its intent is to provide sufficient information and detail to enable a facility to submit an application; however, in some situations certain regulations may not apply to every facility. When this is the case, the applicable regional office of the U.S. Environmental Protection Agency should be contacted to arrange a preapplication meeting to discuss RCRA permit application needs that are not covered or understood.

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PART 1 GUIDANCE MATERIAL

SECTION I

INTRODUCTION

Under Subtitle C of the Resource Conservation and Recovery Act of 1976 (RCRA), the U.S. Environmental Protection Agency (EPA) established regulations to insure the protection of human health and the environment through the proper management of hazardous wastes. These regulations require certain facilities that treat, store, or dispose of hazardous wastes to submit RCRA permit applications to EPA. These applications should contain sufficient information to assure that the management practices at those facilities will provide adequate levels of protection.

This Guide has been written specifically for owners and operators of storage and treatment facilities that have hazardous wastes in tanks, containers, or piles. It provides detailed technical instructions covering the required content of the RCRA permit applications and explains the administrative procedures that the EPA will use in the RCRA permitting program.

The intent of this Guide is to minimize the effort and time required of industry to apply for and obtain RCRA permits. The detailed explanations provided in this Guide will help to prevent applicants from developing and presenting more information than needed to evaluate the applications. The suggested application format is presented as a guide for organizing submissions.

The information presented concerning EPA's administrative and confidentiality procedures in the RCRA permitting program is intended to assist applicants in an understanding of Agency requirements. Ultimately, this Guide should serve to improve communications and cooperation between industry and the EPA in the RCRA permitting program and increase the effectiveness and timeliness with which EPA carries out its regulatory responsibilities.

The second section of this Guide describes the administrative procedures that will be followed in the RCRA permitting program. It includes discussions of how applications will be requested, the two-stage process that EPA will use for reviewing applications, public participation procedures, permit issuance procedures, and the timing of these events. This section also describes the procedures that should be followed in requesting protection from public disclosure of confidential business information. It provides details of the types of information that will receive confidential treatment by EPA and how the legitimacy of confidentiality claims will be determined.

The third section of the Guide presents an accepted format for structuring a RCRA permit application and provides detailed explanations of the information that must be included in the application.

Part 2 of this document presents an example of a complete RCRA permit application for a hypothetical storage facility. This example provides a model on which actual applications can be based. It is structured to assist RCRA permit applicants in determining the appropriate level of detail and the proper presentation of that material. Applicants should be aware, however, that the level of detail will also be related to the size and complexity of the facility.

SECTION II

ADMINISTRATIVE PROCEDURES IN THE PERMITTING PROCESS

This section outlines the activities entailed in applying for and obtaining a RCRA permit for a hazardous waste management (HWM) facility (Figure 1). An understanding of these procedures will allow applicants to deal effectively with EPA in the permitting program.

Most facilities that treat, store, or dispose of hazardous waste must obtain a RCRA permit. The application for this permit consists of two parts, Part A and Part B. Certain facilities (i.e., those in existence before November 19, 1980) have been required to submit Part A. These facilities have been granted an "interim status" that allows them to continue to operate until final administrative action is taken on their permit. To obtain a RCRA permit, however, these facilities must submit Part B applications. The EPA Regional Administrators have the authority to request owners and operators of existing HWM storage and treatment facilities to submit Part B of their RCRA permit application, but any facility may submit the Part B application voluntarily.

Coordination With States

An applicant for a RCRA permit should be aware that the EPA and the states share responsibilities for the administration of

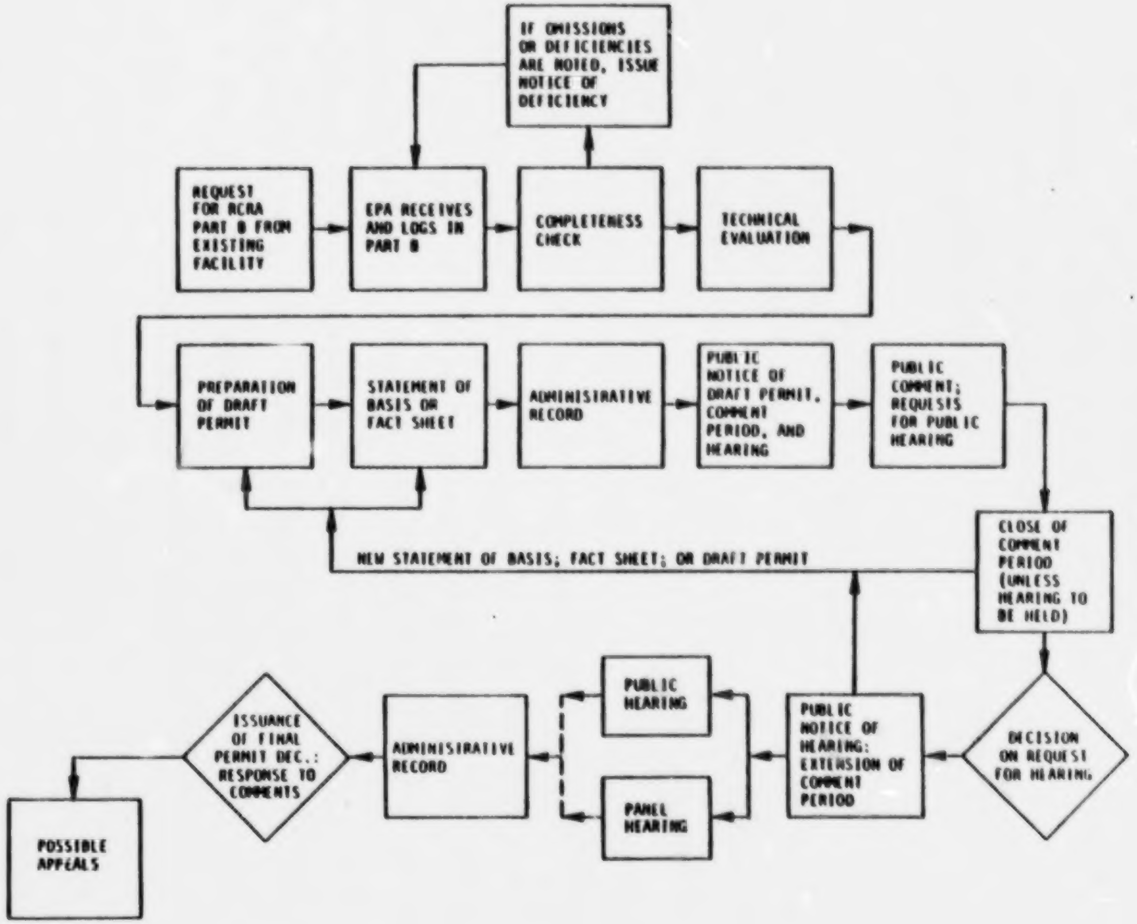
IF OMISSIONS OR DEFICIENCIES ARE NOTED, ISSUE NOTICE OF DEFICIENCY
REQUEST FOR RCRA PART B FROM EXISTING FACILITY
EPA RECEIVES AND LOGS IN PART B
COMPLETENESS CHECK
TECHNICAL EVALUATION
PREPARATION OF DRAFT PERMIT
STATEMENT OF BASIS OR FACT SHEET
ADMINISTRATIVE RECORD
PUBLIC NOTICE OF DRAFT PERMIT, COMMENT PERIOD, AND HEARING
PUBLIC COMMENT; REQUESTS FOR PUBLIC HEARING
CLOSE OF COMMENT PERIOD (UNLESS HEARING TO BE HELD)
NEW STATEMENT OF BASIS; FACT SHEET; OR DRAFT PERMIT
DECISION ON REQUEST FOR HEARING
PUBLIC NOTICE OF HEARING: EXTENSION OF COMMENT PERIOD
PUBLIC HEARING
PANEL HEARING
ADMINISTRATIVE RECORD
ISSUANCE OF FINAL PERMIT DEC.: RESPONSE TO COMMENTS
POSSIBLE APPEALS

Figure 1. Flow diagram of the RCRA permitting process.

the RCRA permit program. Each state's role in the permitting process varies according to the status of its authorization to administer the hazardous waste permit program. Applicants should familiarize themselves with the state's permitting process and be aware that EPA permit writers will be communicating with the states at appropriate stages in the permit process.

Submitting RCRA Part B Permit Applications

The EPA Regional Office may request submission of Part B of the RCRA permit application from an existing facility, or a facility may voluntarily submit Part B. The letter of request will generally include a list of the items in Part B that are applicable to the permit applicant's facility type, a copy of the Part 264 and Part 122.25 regulations, notice of the applicant's right to claim confidentiality, notice of the right to question the EPA Regional staff about application requirements and the names and phone numbers of the appropriate contacts, information on the number of copies required and where the applicant is to submit them, and a recommendation that the applicant contact the appropriate state authority.

An existing facility that has been requested to submit Part B of the RCRA permit application is allowed at least 6 months to gather, organize, and send the required data to EPA. During this time, the facility can contact the EPA Regional Office for clarification or assistance. Depending on the depth and complexity of the issues, the EPA or the applicant may find it useful to schedule a conference. Such a meeting can facilitate the permitting process by identifying problems early and enabling the applicant to resolve them.

Claims of Confidentiality

At the time of submittal, applicants for a RCRA permit may assert a claim of business confidentiality for proprietary information included in their application. General EPA regulations governing claims of confidentiality are found in Title 40 of the Code of Federal Regulations (40 CFR), Part 2. Specific provisions for claims of confidentiality submitted with permit applications are found in 40 CFR 122.19.

In these regulations, "business information" means "...any information which pertains to the interest of any business, which was developed or acquired by that business, and which is possessed by EPA in recorded form." "Commercial information" refers to processes, operations, style of work, or apparatus. "Financial information" refers to the identity, confidential statistical data, amount of source of any income, profits, losses, or expenditures of the applicant.

An applicant may claim that business information is entitled to confidential treatment for "reasons of business confidentiality." This includes trade secrets and commercial or financial information, that, if released, would be likely to cause substantial harm to the competitive position of the applicant.

Claims of confidentiality must be asserted when the permit application is submitted. If no claim is asserted at that time, the EPA may make the information available to the public without further notice to the applicant.

To assert a claim, the applicant must attach a cover sheet to the information, or stamp or type a notice on each page of the information, or otherwise identify the confidential portions of the application. Words such as "trade secret", "confidential business information", "proprietary", or "company confidential" should be used. The notice should also state whether the applicant desires confidential treatment only until a certain date or a certain event.

Prior to releasing any information for which a claim of confidentiality has been made, the Agency will give the applicant an opportunity to substantiate its claim and will then determine whether the information warrants confidential treatment.

Applicants should limit their requests for confidential treatment to such material that if released, is likely to cause substantial harm to the competitive position of their respective companies. Claims of confidentiality should not be asserted for information that is reasonably obtainable without the applicant's consent (for example, standard engineering designs). It is important not to claim confidentiality for the entire permit application, as such claims will significantly delay the permitting process.

Whenever possible, the applicant should separate the information contained in the application into confidential and nonconfidential units and submit them under separate cover letters. Claiming confidentiality for a large portion of the information in the permit application and failing to separate the application into confidential and nonconfidential units may result in significant delays in processing the permit application because the EPA lacks the in-house resources for expeditiously separating out the information entitled to confidential treatment.

EPA's Review of Part B Applications

When the EPA Regional Office receives a RCRA permit application, it reviews the application for administrative and technical completeness. The administrative review involves a check of the timeliness of the submittal, general data items, correct signatures, and certification of relevant technical data by registered professional engineers.

If the application is incomplete, the EPA requests the missing information through a "Notice of Deficiency" (NOD) letter. This letter details the information needed to complete the application and specifies the date for submission of these data. When the EPA has received all the necessary information, they will notify the applicant in writing that the application is complete.

The EPA then performs a technical review of the application to determine whether the facility under review has satisfied the requirements of the standards promulgated under Title 40 of the Code of Federal Regulations (40 CFR), Part 264, and should be granted a RCRA permit. A site inspection may be conducted during the RCRA permit application review process to verify the information contained in the application.

The Agency may choose to use state officials or a contractor to provide technical expertise and assist in the technical review of a permit application or to conduct onsite visits to verify information pertinent to the issuance or denial of a RCRA permit.

Draft RCRA Permits and Permit Denials

Upon completion of the technical review, the EPA Regional Administrator tentatively decides whether to issue or deny a RCRA permit. If the tentative decision is to issue the permit, the EPA regional staff prepares a draft permit for public review. The draft RCRA permit specifies all the limitations, requirements, and conditions to be placed on the facility. The Regional Office also prepares a "fact sheet" or "statement of basis," which explains in simple language the reason for each condition included in the draft permit.

When writing a RCRA permit, the EPA may specify a schedule for compliance rather than requiring the facility to be in full compliance at the time of permit issuance. A compliance schedule allows the facility to operate while it is upgrading its operations to meet all the regulatory requirements. Such a compliance schedule is used only when it is clear that temporary noncompliance will have no unacceptable effects on human health or the environment. In its decision regarding a schedule for compliance, the Agency also considers such factors as availability of any materials required to upgrade the facility, construction time, and the time required to contract for such services.

A permit may be denied if it is determined that an applicant cannot meet the requirements of the standards set forth in 40 CFR 264, that activities at the facility will endanger human health or the environment, or that an applicant either has not fully disclosed all relevant facts in the application or during the RCRA permit issuance process or has misrepresented any relevant facts at any time.

If the Regional Administrator tentatively decides to deny a RCRA permit, a notice of intent to deny a permit is prepared. This notice is considered a type of draft permit and follows the same procedures as any draft permit. These procedures include preparation of a statement of basis or fact sheet containing reasons supporting the tentative decision to deny the permit, public notice of the denial, acceptance of comments, a possible hearing, preparation of a final decision, and possible receipt of a request for appeal.

Public Notice, Comments, Informal Public Hearings, Panel Hearings

All draft RCRA permits are subject to public notice, public comments, and public hearing (if the Regional Administrator finds a significant degree of public interest). Public notice provides interested persons a minimum of 45 days to comment on the draft permit.

If written opposition to the Agency's intent to issue a permit and a request for a hearing are received during the comment period, a public hearing will be held. Notification of the hearing is issued at least 30 days prior to the scheduled date, and the public comment period is extended until the close of the public hearing.

The EPA Regional Office also has the option of conducting more formal "panel hearings" when the issuance of a draft RCRA permit is complicated enough to justify such a proceeding. Also, any person may request a panel hearing. The panel hearing enables the EPA to obtain facts on objectionable aspects of the draft permit and to receive evidence to support suggested alternative permit conditions and to aid in the preparation of a final decision on a permit.

Final Permits

After the close of the public comment period (which includes the public hearing period or any panel hearing), the Regional Office either prepares and issues a final RCRA permit or denies the permit application. In either case, the applicant and interested parties will receive public notice, which includes information regarding appeal procedures. Unless a later date is specified, uncontested terms and conditions of the draft RCRA permit become effective 30 days after the date of the public notice. At the time the final RCRA permit is issued, the Regional Office also issues a response to any significant public comments received and indicates any provisions of the draft permit that have been changed and the reasons for the changes. The response to comments becomes part of the administrative record.

Appeal to the Regional Administrator

Persons who submitted comments on the draft RCRA permit or participated in any public hearing are allowed 30 days after the final permit decision to file a notice of appeal and a petition for review with the Regional Administrator. The Regional Administrator then grants or denies the petition within a reasonable time. If the Administrator decides to conduct a review, the parties are given the opportunity to file briefs in support of their positions. Within the 30-day period, the Administrator also may decide to review the decision to grant or deny a hearing on his/her own motion. The Administrator then notifies the parties and sets up a briefing schedule. On review, the Administrator has several options regarding the final decision. It may be summarily affirmed without opinion, modified, set aside, or remanded for further proceedings. This petition for review by the Administrator is a prerequisite for judicial review of the Administrator's final decision.

SECTION III

INSTRUCTIONS FOR PREPARATION OF A RCRA PERMIT APPLICATION

This section attempts to simplify preparation of a RCRA permit application by describing in detail the information required. It also includes a suggested permit application format. The information presented is based on RCRA regulations dealing with Part B permit requirements (40 CFR 122.25) and the technical standards in 40 CFR 264. Using the suggested format and meeting the detailed requirements should enable the applicant to complete the RCRA permit application in a timely and cost-effective manner. When submitting an application, the applicant should be sure that the document is presented in a manner that will allow for major and minor revisions during the subsequent review by EPA (e.g., a three-ring binder).

RCRA Permit Application Format

The suggested permit application format presented in the following pages includes all information required for a permit application. Most sections of the application must be completed by all facilities, but a few sections do not apply to certain facilities. For example, existing facilities need not address the seismic standards in Section B - Facility Description. The applicability of such sections is indicated in the narrative that follows the outline.

The format and explanations presented in this section are supplemented by a model RCRA permit application for a hypothetical plant, which appears as Part 2 to this document. This model carefully follows the outline and provides a practical illustration of how to approach the RCRA permit application process.

Suggested Permit Application Format

- A. Part A Application
- B. Facility Description
  - B-1 General description [40 CFR Section 122.25(a)(1)]
  - B-2 Topographic map [40 CFR Section 122.25(a)(19)]
  - B-3 Location information [40 CFR Sections 122.25(a)(11), and 264.18]
    - B-3a Seismic standard (reserved)
    - B-3b Floodplain standard
      - B-3b(1) Demonstration of compliance
        - B-3b(1)(a) Flood proofing and flood protection measures
        - B-3b(1)(b) Flood plain
      - B-3b(2) Plan for future compliance
  - B-4 Traffic patterns [40 CFR Sections 122.25(a)(10)]
- C. Waste Characteristics
  - C-1 Chemical and physical analyses [40 CFR Sections 122.25(a)(2) and 264.13(a))]
  - C-2 Waste analysis plan [40 CFR Sections 122.25(a)(13) and 264.13(b) and (c)]
    - C-2a Parameters and rationale
    - C-2b Test methods
    - C-2c Sampling methods
    - C-2d Frequency of analyses
    - C-2e Additional requirements for waste generated offsite
- D. Process Information
  - D-1 Containers [40 CFR Sections 122.25(b)(1), 264.171, 264.172, 264.173, 264.175 and 264.176]
    - D-1a Containers with free liquids
      - D-1a(1) Description of containers
      - D-1a(2) Container management practices

      - D-1a(3) Secondary containment system design and operation
        - D-1a(3)(a) Requirement for base to contain liquids
        - D-1a(3)(b) Containment system drainage
        - D-1a(3)(c) Containment system capacity
        - D-1a(3)(d) Control of run-on
      - D-1a(4) Removal of liquids from containment system
    - D-1b Containers without free liquids
      - D-1b(1) Test for free liquids
      - D-1b(2) Description of containers
      - D-1b(3) Container management practices
      - D-1b(4) Container storage area drainage
  - D-2 Tanks [40 CFR Sections 122.25(b)(2), 264.191, 264.192]
    - D-2a Description of tanks
    - D-2b Tank corrosion and erosion
    - D-2c Tank management practices
  - D-3 Wastes piles [40 CFR Sections 122.25(b)(4), 264.250, 264.251, 264.252, 264.253]
    - D-3a Waste piles with free liquids
      - D-3a(1) Control of wind dispersal
      - D-3a(2) Control of run-on
      - D-3a(3) Collection of leachate and runoff
      - D-3a(4) Foundation
      - D-3a(5) Waste pile base
        - D-3a(5)(a) Containment system design
        - D-3a(5)(b) Leachate detection, collection, and removal system
      - D-3a(6) Vegetation and rodent control
      - D-3a(7) Equipment and procedures for waste pile movement
    - D-3b Waste piles without free liquids
      - D-3b(1) Test for free liquids
      - D-3b(2) Control of wind dispersal
      - D-3b(3) Protection from precipitation and run-on
      - D-3b(4) Demonstration that no free liquids are placed on pile
  - D-4 Surface impoundments
  - D-5 Incinerators

E. Ground Water Monitoring Systems (Reserved)

F. Procedures to Prevent Hazards

- F-1 Security [40 CFR Sections 122.25(a)(4) and 264.14]
  - F-1a Security procedures and equipment
    - F-1a(1) 24-hour surveillance system
    - F-1a(2) Barrier and means to control entry
      - F-1a(2)(a) Barrier
      - F-1a(2)(b) Means to control entry

Suggested Permit Application Format (continued)

    - F-1a(3) Warning signs
  - F-1b Waiver
    - F-1b(1) Injury to intruder
    - F-1b(2) Violation by intruder
- F-2 Inspection schedule [40 CFR Sections 122.(a)(5), 264.15, 264.33, 264.174, 264.194, 264.254, 264.255]
  - F-2a General inspection requirements
    - F-2a(1) Types of problems
    - F-2a(2) Frequency of inspection
  - F-2b Specific process inspection requirements
    - F-2b(1) Container inspection
    - F-2b(2) Tank inspection
      - F-2b(2)(a) Construction materials
      - F-2b(2)(b) Surrounding area
      - F-2b(2)(c) Overfilling control equipment
      - F-2b(2)(d) Monitoring data
      - F-2b(2)(e) Level of waste
      - F-2b(2)(f) Tank condition assessment
      - F-2b(2)(g) Tank interior inspection
    - F-2b(3) Waste pile inspection
      - F-2b(3)(a) Liner systems
      - F-2b(3)(b) Manufactured liner materials
      - F-2b(3)(c) Containment system
  - F-2c Remedial action
  - F-2d Inspection log
- F-3 Waiver of preparedness and prevention requirements [40 CFR Sections 122.25(a)(6), 264.32, and 264.35]
  - F-3a Equipment requirements
    - F-3a(1) Internal communications
    - F-3a(2) External communications
    - F-3a(3) Emergency equipment
    - F-3a(4) Water for fire control
  - F-3b Aisle space requirement
- F-4 Preventive procedures, structures, and equipment [40 CFR Section 122.25(a)(8)]
  - F-4a Loading/unloading operations
  - F-4b Runoff
  - F-4c Water supplies
  - F-4d Equipment and power failure
  - F-4e Personnel protection equipment
- F-5 Prevention of reaction of ignitable, reactive, or incompatible wastes [40 CFR Sections 122.25(a)(9), 122.25(b)(1)(iii), 122.25(b)(2)(vi), 122.25(b)(4)(i)(c)(4), 122.25(b)(4)(ii)(b)(1), 264.17, 264.21, 264.23, 264.176, 264.177, 264.198, 264.199, 264.256, 264.257]
  - F-5a Precautions to prevent ignition or reaction of ignitable or reactive wastes
  - F-5b General precautions for handling ignitable or reactive wastes or accidently mixing incompatible wastes

- F-5c Management of ignitable or reactive wastes in containers
- F-5d Management of incompatible wastes in containers
- F-5e Management of ignitable or reactive wastes in tanks
- F-5f Management of incompatible wastes in tanks
- F-5g Management of ignitable or reactive wastes in waste piles
- F-5h Management of incompatible wastes in waste piles

G. Contingency Plan

- G-1 General information [40 CFR Section 122.25(a)(7)]
- G-2 Emergency coordinators [40 CFR Sections 122.25(a)(7), 264.52(d), and 264.55]
- G-3 Implementation of the contingency plan [40 CFR Sections 122.25(a)(7), 264.51(b)]
- G-4 Emergency response procedures [40 CFR Sections 122.25(a)(7), 264.52(a), 264.56, 264.171, 264.194(c), 264.255, and 264.258]
  - G-4a Notification
  - G-4b Identification of hazardous materials
  - G-4c Assessment
  - G-4d Control procedures
  - G-4e Prevention of recurrence or spread of fires, explosions, or releases
  - G-4f Storage and treatment of released material
  - G-4g Incompatible wastes
  - G-4h Post-emergency equipment maintenance
  - G-4i Container spills and leakage
  - G-4j Tank spills and leakage
  - G-4k Waste piles
    - G-4k(1) Indication of waste pile containment system failure
    - G-4k(2) Elements of a containment system evaluation and repair plan
    - G-4k(3) Criteria and procedures for removal of waste pile from service in the case of positive failure of the containment system
    - G-4k(4) Restoration of a waste pile to service
    - G-4k(5) Course of action after waste pile is removed from service
- G-5 Emergency equipment [40 CFR Sections 122.25(a)(7) and 264.52(e)]
- G-6 Coordination agreements [40 CFR Sections 122.25(a)(7), 264.52(c) and 264.37]
- G-7 Evacuation plan [40 CFR Sections 122.25(a)(7), 264.52(f)]
- G-8 Required reports [40 CFR Sections 122.25(a)(7), 264.56(d), 264.56(i), and 264.73(b)(4)]

Suggested Permit Application Format (continued)

H. Personnel Training

- H-1 Outline of training program [40 CFR Sections 122.25(a)(12) and 264.16]
  - H-1a Job titles and duties
  - H-1b Training content, frequency, and techniques
  - H-1c Training director
  - H-1d Relevance of training to job position
  - H-1e Training for emergency response
    - H-1e(1) Procedures for using, inspecting, repairing, and replacing facility's emergency and monitoring equipment
    - H-1e(2) Key parameters for automatic waste feed cutoff systems
    - H-1e(3) Communications on alarm systems
    - H-1e(4) Response to fires
    - H-1e(5) Response to groundwater contamination incidents
    - H-1e(6) Shutdown of operations
- H-2 Implementation of training program [40 CFR Sections 122.25(a)(12) and 264.16]

I. Closure Plans, Post-Closure Plans and Financial Requirements

- I-1 Closure plans [40 CFR Sections 122.25(a)(13), 264.111, 264.112, 264.113, 264.178, 264.197, and 264.258
  - I-1a Closure performance standard
  - I-1b Partial closure
  - I-1c Maximum waste inventory
  - I-1d Disposal or decontamination of equipment
    - I-1d(1) Closure of containers
    - I-1d(2) Closure of tanks
    - I-1d(3) Closure of waste piles
  - I-1e Schedule for closure
  - I-1f Extensions for closure time
- I-2 Post-closure plans*
- I-3 Notice in deed and notice to local land authority*
- I-4 Closure cost estimate [40 CFR Sections 122.25(a)(15) and 264.142]
- I-5 Financial assurance mechanism for closure [40 CFR Sections 122.25(a)(1), 264.143, and 264.151]
  - I-5a Closure trust fund
  - I-5b Surety bond
  - I-5c Closure letter of credit
  - I-5d Closure insurance
  - I-5e Financial test
  - I-5f Combinations

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* These items apply only to disposal facilities.

        - I-5f(1) Multiple financial mechanisms
        - I-5f(2) Use of financial mechanism for multiple facilities
    - I-5g Proof of financial coverage by an equivalent state financial mechanism
- I-6 Post-closure cost estimate*
- I-7 Financial assurance mechanism for post-closure*
- I-8 Liability requirements [40 CFR Sections 122.25(a)(17), 264.147, and 264.151]
    - I-8a Sudden insurance
    - I-8b Non-sudden insurance**
    - I-8c Financial test for liability insurance
    - I-8d Variance procedures
    - I-8e Adjustment procedures
- I-9 State mechanisms
    - I-9a Use of state-required mechanisms [40 CFR Sections 122.25(a)(18), 264.149, and 264.150]
    - I-9b State assumption of responsibility

J. Other Federal Laws [40 CFR Sections 122.12 and 122.25(a)(20)

K. Certification [40 CFR Sections 122.6(a) and (d)]

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* These items apply only to disposal facilities.

** Required for surface impoundments, landfills, or land treatment facilities.

Detailed Instructions and Content Requirements

The detailed instructions provided herein encompass the content requirements of each permit section identified in the suggested RCRA Permit Application Format and cites the Federal regulation from which they were developed.

Sources of information applicants may use to prepare portions of the permit application are identified by reference numbers in parentheses at the end of each section.

Certain technical data submitted in the permit application must be certified by a registered professional engineer; these include design drawings and specifications and engineering studies.

A. PART A APPLICATION [CFR Sections 122.4(d) and 122.24]

Submit a revised Part A application if corrections to your original submission are necessary because of changes at your facility, inaccuracies in your submission, or changes in the RCRA regulations. Unless a revised Part A application is received, your original submittal will be used for review purposes.

B. FACILITY DESCRIPTION

B-1 General Description [40 CFR Section 122.25(a)(1)]

Provide a general description of the hazardous waste management facility in sufficient detail to familiarize the reviewer with its overall operation. Include the facility name, contact, mailing address, and location. Briefly describe the nature of the business (e.g., products or services offered). Provide a company brochure if one is available. Offsite facilities should identify the types of industries serviced. Onsite facilities should briefly describe the process(es) involved in the generation of hazardous waste (Reference 1).

B-2 Topographic Map [40 CFR Section 122.25(a)(19)]
Submit a topographic map with a scale in which 1 inch equals no more than 200 feet and with contour intervals that are sufficient to clearly show the pattern of surface water flow in the vicinity of the hazardous waste units. The map must cover an area extending 1000 feet beyond the facility property line. The map(s) must show the scale, date, 100-year floodplain area, surface waters (including intermittent streams) and direction of their flow, surrounding land uses, a wind rose, wind speed and direction, map orientation, legal property line boundaries of the facility, access control, injection and withdrawal wells, buildings, structures, the location of each intake and discharge structure, sewers, loading and unloading areas, fire control, flood control or drainage barriers, and location of hazardous waste operations units. More than one map may be used to indicate the items listed above. On a case-by-case basis the Agency may accept maps with contour intervals or scales other than those specified in the regulations. Consult your EPA or state agency for further guidance.

The Part B topographic map will differ from the map submitted with the Part A of the application in area of coverage and level of detail (References 2, 3, 4, 5, 6, 7, 8).

B-3 Location Information

B-3a Seismic Standard [40 CFR Section 264.18(a) and 122.25(a)(11)(i) and (ii)]

Existing facilities are not required to comply with the seismic standards.

B-3b Floodplain Standard [40 CFR Sections 122.25(a) (11)(iii) and 264.18(b)]

Provide documentation identifying whether the facility is located within a 100-year floodplain. The Federal Insurance Administration, through the National Flood Insurance Program,* is the prime supplier of floodplain maps. Other Federal agencies (e.g., the U.S. Army Corps of Engineers, the Soil Conservation Services, and the U.S. Geological Survey) supply maps or information that will help you determine the boundaries of the 100-year floodplain. If FIA maps are not available, equivalent mapping techniques must be used. Facilities located within the 100-year floodplain must identify the 100-year flood level and any other special flooding factors (e.g., wave action) that must be considered to prevent washout (References 9, 10, 3, 4, 5, 7, 8, 11).

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* National Flood Insurance Program, P.O. Box 34294, Bethesda, Maryland 20034.

B-3b(1) Demonstration of Compliance [40 CFR Section 122.25(a)(11)(iv)]

If your facility is located within the 100-year floodplain, describe how the facility is designed, constructed, operated, and maintained to prevent washout of any hazardous waste in the event of a flood by either of the following methods.

B-3b(1)(a) Flood Proofing and Flood Protection Measures [40 CFR Section 122.25(a)(11) iv (A) and (B)]

Provide structural or other engineering studies showing the design of the tanks, containers, or waste piles and the flood-proofing and protection devices (i.e., freeboard, fencing, diversion structures) at the facility and how they will prevent washout. The study should include an analysis of the structural integrity of the waste units and/or the flood protection devices to withstand the various hydrodynamic and hydrostatic forces expected as a result of a 100-year flood (References 10, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25).

B-3b(1)(b) Flood Plan [40 CFR Section 122.25(a)(11)(iv)(C)]

Describe the procedures for removing hazardous waste to safety before the facility becomes flooded. Include the timing of such movement related to flood levels (including estimated time to move the waste) to show that it can be completed before floodwaters reach the facility; a description of the location(s) to which the waste will be moved and proof of the eligibility of these locations to receive hazardous wastes (i.e., RCRA Interim Status Facilities or RCRA Permitted Facilities); the planned procedures, equipment, and personnel to be used and the means of ensuring that these resources will be available when needed; and the potential for accidental discharges of the wastes during movement.

B-3b(2) Plan for Future Compliance (40 CFR Section 122.25(a)(11)(v)]

If your facility is not in compliance with the floodplain regulation, provide a plan showing how and when it will be brought into compliance. (Existing facilities located in the 100-year floodplain that do not have a flood plan or are not designed to withstand a washout are not in compliance with the floodplain regulations.)

B-4 Traffic Patterns [40 CFR Section 122.25(a)(10)]

Describe the means of transporting hazardous waste material on your facility's property; include traffic pattern, traffic control, and estimated volume. List the weight of trucks transporting hazardous waste (state the maximum weight of fully loaded trucks), the load bearing capacity of the roads, and the road surfacing.

For facilities receiving hazardous waste from offsite, also describe the movement of the waste material to the facility from the point where it leaves the nearest major highway. Provide a diagram indicating traffic route, traffic controls, and land use (commercial or residential streets) (Reference 26).

C. WASTE CHARACTERISTICS

C-1 Chemical and Physical Analyses [40 CFR Sections 122.25(a)(2) and 264.13(a)]

Provide the following information on each hazardous waste stored or treated at the facility: (1) general description; (2) hazardous characteristics (corrosive, toxic, ignitable, reactive); (3) basis for hazardous designation. (For a listed waste, identify the EPA hazardous waste number; for an ignitable waste, specify the flash point; for a reactive waste identify under what conditions the waste reacts; for a corrosive waste, identify pH; for an EP toxic waste, identify the EP toxic constituents and their concentrations.)

Include a copy of the laboratory report(s) detailing chemical and physical analyses of representative samples of the hazardous waste, and give the date these analyses were performed. The analyses may include existing published or documented data on the hazardous waste or on hazadous wastes generated from a similar process. Offsite facilities may submit information supplied by the generator (References 27, 28, 29, 30).

C-2 Waste Analysis Plan (40 CFR Sections 122.25(a)(3) and 264.13(b) and (c)]

Provide a copy of the waste analysis plan indicating how the facility will ensure that analysis of hazardous waste is accurate and up to date (i.e., that includes any changes in the process that generated the hazardous waste) (References 1, 3, 28, 45). The plan should include a description of how the waste analyses will be performed; a list of the parameters chosen for analysis and an explanation of the rationale for their selection; a description of the test methods used to test for the chosen parameters;* a list of the sampling methods used to obtain a representative sample of each waste;* a description of the frequency at which the analyses will be repeated; and for facilities handling waste generated offsite, a description of the procedures used to inspect and/or analyze wastes generated offsite (including procedures to determine their identity and the sampling methods used).

D. PROCESS INFORMATION

D-1 Containers

D-1a Containers with Free Liquids

D-1a(1) Description of Containers [40 CFR Sections 264.171 and 264.172]

Describe the facility's primary containment devices for hazardous waste storage. The description should include types, dimensions (including usable volume), and liner specifications, and whether the containers are new, reused, recycled, or reconditioned. Include container manufacturer's specifications, if available. Types of containers can include, but are not restricted to, metal drums, fiber drums, barrels, kegs, bags, multiwall paper, polyethylene (PE) film, small bags, pouches, folding boxes, corrugated cartons, bulk boxes, carboys, plastic drums, bottles, cans, pails, and wrap materials. Indicate container markings (in the form of labels, placards, tags, or stencils). Document the compatibility of the waste(s) with the storage container(s) in use at the facility. This documentation can consist of references to published scientific or industrial engineering literature, data from trial tests (e.g., bench-scale or pilot-scale tests), waste analyses, or the results of the storage or treatment of similar wastes under comparable operating conditions. When information on experience with similar wastes and materials (structural materials and linings) is not available, corrosion tests are highly recommended. Only wastes that significantly accelerate corrosion or deterioration (as opposed to normal expected container corrosion) are considered incompatible with the containment material.

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* Refer to methods in EPA S.W. 846, Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods or 40 CFR Part 261, Appendix I, II, and III where applicable.

D-1a(2) Container Management Practices [40 CFR Section 264.173]
Describe what container management practices are used to ensure that containers holding hazardous waste are always closed during storage (except when adding or removing waste). Provide assurance that containers are not opened, handled, or stored in a manner that may rupture the container

or cause it to leak. Include a detailed exhibit (facility drawing) and discussion of the container storage area. The facility drawing must show the layout of the container arrangement for both outdoor and indoor locations. Specify the maximum number of containers in the storage area, the type and volume of containers to be stored, separation and aisle spacing distances, and the location of various waste types. Clearly show the storage locations of incompatible, reactive, and ignitable wastes. Also indicate possible ignition sources of the facility (e.g., open flames). If containers are stacked, indicate the maximum number of containers and the height of the containers. Also, distinguish between the location of container storage areas and container staging areas by clearly defining the design, function, and operation of the staging areas. On the facility drawing of outdoor storage areas, indicate locations that typically receive full sunlight. Describe the machinery, equipment, and procedures used to move containers containing hazardous waste to and within storage locations.

Indicate the frequency with which storage containers containing hazardous waste are opened to add or remove waste during the container's useful storage life at the facility.

If a system of tracking the age of drums and other containers is included in the container storage management practices, state whether the dates are actually marked on the drums and other containers or placed on the schematic of the container storage area.

D-1a(3) Secondary Containment System Design and Operation [40 CFR Sections 122.25(b)(1) and 264.175(b)]

Describe the design and operation of the secondary containment system in the container storage area. The description should clearly demonstrate the system's adequacy to hold spills, leaks, and precipitation until detection and removal. Include a drawing of the secondary containment system design; show the dimensions of the containment system, location of the storage area containers on the base/liner, leachate collection system, slope characteristics, base grading, height of auxiliary structures (curbs, dikes, berms, ditches, trenches), and the location of the sump or collection area.

D-1a(3)(a) Requirement for Base or Liner to Contain Liquids [40 CFR Section 264.175(b)(1)]

Demonstrate that the containers of free liquids are located on a base free of cracks or gaps and sufficiently impervious to contain leaks, spills, and accumulated precipitation until the collected material is detected and removed. Include the base or liner characteristics and specifications for all concrete, asphaltic, and membrane linings. Indicate the construction material used for the base or liner, provide liner/base manufacturer's specifications and information, and include engineering data used as the basis for construction of the base. This information should be sufficient to verify that the base material and thickness are adequate to support the weight of the containers. Document that the types of waste stored are compatible with the liner or base to be used.

D-1a(3)(b) Containment System Drainage [40 CFR Sections 122.25(b)(1)(i)(B) and 264.175(b)(2)]

If the containers are stored in direct contact with the base, state how the base is sloped or how the containment system is otherwise designed and operated to drain and remove liquids resulting from leaks, spills, or precipitation. Included in the various designs that comply with this requirement are drains that lead into a sump under the base, a sloped base that directs liquids into a sump, or a system by which accumulated liquids are pumped out of the containment area shortly after being detected. If the containers are elevated or otherwise protected from contact with accumulated liquids (i.e., a roof over the drain area), you only need to describe the storage practice used to accomplish this protection (i.e., how containers are stacked on pallets, plywood sheets, and/or racks).

D-1a(3)(c) Containment System Capacity [40 CFR Sections 122.25(b)(1)(i)(C) and 264.175(b)(3)]

Document that the containment system has sufficient capacity to contain 10 percent of the volume of all the containers or the volume of the largest container, whichever is greater. Describe how the containment system has fared during extreme precipitation events.

D-1a(3)(d) Control of Run-On [40 CFR Sections 122.25(b)(1)(i)(D) and 264.175(b)(4)]

Describe how run-on into the containment system is prevented, unless the collection system has sufficient capacity in excess of that required in the previous "Containment system capacity discussion (D-1a(3)(c)), to contain any run-on that might enter the system. Describe the role of containment system auxiliary structures and other engineering land-grading designs in preventing run-on into the containment system, and in promoting drainage away from the containment area (e.g., drain tiles installed at the outside perimeter of the containment curb to drain any collected water to the sewer system).

D-1a(4) Removal of Liquids from Containment System [40 CFR Sections 122.25(b)(1)(i)(E) and 264.175(b)(5)]

Describe how spilled or leaked waste and accumulated precipitation will be removed from the collection area or sump in as timely a manner as is necessary to prevent overflow of the collection system. Include sump pump design and operating capabilities, piping specifications, and diagrams. Describe the management procedures for accumulated liquids and the ultimate fate of such liquids removed from the containment system.

D-1b Containers Without Free Liquids

D-1b(1) Test for Free Liquids [40 CFR Section 122.25(b)(1)(ii)(A)]

Describe the test procedures and results or provide other documentation or information to show that the containerized wastes do not contain free liquids.

A proposed test protocol for free liquids is provided on page 8311 of the February 25, 1982, Federal Register. The protocol calls for a representative sample of the waste from a container to be filtered and the filtrate to be collected in a beaker or cylinder. If free liquid passes through the filter, then the waste is considered to hold free liquids.

D-1b(2) Description of Containers [40 CFR Sections 264.171 and 264.172]

Provide a description similar to the one used for free liquid containers, D-1a(1).

D-1b(3) Container Management Practices [40 CFR Section 264.173]

Provide a description of container management practices similar to the one used for free liquid containers, D-1a(2).

D-1b(4) Container Storage Area Drainage [40 CFR Sections 122.25(b)(1)(ii)(B) and 264.175(c)]

Provide a description of the container storage area drainage similar to the one used for free liquid containers, D-1a(3)(b).

D-2 Tanks

D-2a Description of Tanks [40 CFR Sections 122.25(b)(2) and 264.191

Describe all facility storage, overflow, and processing tanks used for hazardous waste management. The description should include the number and types of tanks, the type of waste they contain, and whether the tanks are covered. Include manufacturer's literature or other engineering information, if available. Tank design specifications should include specific data on dimensions (height, diameter, measured uniform shell thickness), capacity, and the material and method of construction. Include design operating temperature and pressure information. State that the tanks are designed in accordance with the design standard codes of the American Petroleum Institute (API), the American Society of Mechanical Engineers (ASME), Underwriters' Laboratories, the American Concrete Institute Standard, or some other standard design code. Provide the applicable standard code section and year. Indicate the specific gravity of the liquid in the tanks and the maximum height of the liquid level in the tank(s) during storage.

Provide detailed engineering drawings for each tank containing a hazardous waste. Give specifications for the foundation, structural support, seams, and pressure controls to demonstrate that the tanks will not collapse or rupture.

D-2b Tank Corrosion and Erosion [40 CFR Sections 122.25(b)(2)(ii) and 264.192(a)]

Describe the lining and coating materials (if any) used to protect tank construction materials from corrosion or erosion. Demonstrate the compatibility of the hazardous waste with the tank construction and the lining and coating materials. This documentation can consist of references to published scientific or industrial engineering literature, data from trial tests (e.g., bench-scale or pilot-scale tests), waste analyses, or the results of the storage or treatment of similar wastes under comparable operating conditions. When information on experience with similar wastes and materials (structural materials and linings) is not available, corrosion tests are highly recommended. Provide information on the type of gaskets in use and their material of construction. Describe how the shell thickness will be maintained when the tank is built or converted to store hazardous waste. Provide information on the rate of tank corrosion or erosion actually detected by measurement. Include information about any treatment reagents used in all of the facility tanks.

D-2c Tank Management Practices [40 CFR Sections 122.25(b)(2)(iv), 122.25(b)(2)(v) and 264.192(b)]

Describe tank operating practices and control devices to prevent overfilling and overtopping. For covered tanks, submit engineering process flow diagrams indicating the location, numbers, and types of pressure and overfilling controls and feed systems. For uncovered tanks, submit engineering process flow diagrams indicating the location and operational practices of the safety cutoffs or bypass systems and the amount of freeboard. Describe what monitoring will be done to ensure that each tank is operated according to design. Describe the procedures used to measure the following process variables: temperature of waste, pressure, flow level, and specific gravity; indicate how frequently these measurements are taken. The process flow diagram should show the flow direction of liquid or vapor within the facility and (if available) flow rates. The flow diagram must indicate any waste streams in the flow process that vent directly to the atmosphere or discharge directly to the municipal wastewater treatment system.

Provide a piping and instrumentation diagram (P&ID) that shows instruments such as valves, level and pressure controls, and temperature and pressure indicators that are used to control and monitor the operation of the tanks. Provide a plot plan of the facility with each piece of equipment (drawn to scale), and locate each piece of equipment in relation to the entire facility. Include the location of tank diking and drainage systems for tanks, space requirements between equipment, and receiving areas for wastes.

D-3 Waste Piles

D-3a Waste Piles with Free Liquids [40 CFR Section 122.25(b)(4)(i)]

D-3a(1) Control of Wind Dispersal [40 CFR Sections 122.25(b)(4)(i)(A), 264.251(a) and 264.252(a)]

For each waste pile, describe the technique(s) for controlling wind dispersal. Include such considerations as waste pile siting; pile slope design and compaction; the use of water sprays, dust suppressants other than water, and stabilizers; windbreaks; and enclosures (if they are used as waste pile management techniques for control of wind dispersal). If the waste pile is situated in a totally enclosed building, describe the dust evacuation method.

D-3a(2) Control of Run-on [40 CFR Sections 122.25(b)(4)(B)(1) and 264.252(b)]

Describe measures for preventing water from flowing into the pile. Discuss the diversion of run-on by describing the location and construction of such structures as berms, dikes, walls, curbs, trenches, or other manmade or natural barriers in the waste pile area.

D-3a(3) Collection of Leachate and Runoff [40 CFR Sections 122.25(b)(4)(B)(2), 122.25(b)(4)(i)(C)(2), 264.251(b), 264.252(b) and 264.253(a)(1)]

Describe the waste pile leachate and runoff collection and control system. Show how accumulated leachate and precipitation will be removed from the collection area or sump as necessary to prevent overflow of the leachate collection system. Include sump pump design and operating capabilities, piping specifications, and diagrams. Indicate the leachate management procedures and the ultimate fate of accumulated liquids removed from the containment system.

D-3a(4) Foundation [40 CFR Sections 122.25(b)(4)(B)(3) and 264.253(b)(2)]

Provide engineering data to demonstrate that the foundation is capable of holding the weight of the base or liner, the pile, and any equipment to be used. Also describe the foundation construction material (i.e., soil, concrete, or asphalt). (Refer to the Model Permit Application, Section D on Waste Piles - Foundation, for a specific example.)

D-3a(5) Waste Pile Base

D-3a(5)(a) Containment System Design [40 CFR Sections 122.25(b)(4)(B)(4), 264.253(a), 264.253(b), and 264.253(d)

Present containment system engineering plan drawings depicting all control systems and structures associated with the waste pile. Provide information to demonstrate that the waste pile will be located on a base that is free of cracks or gaps and sufficiently impervious to contain leachate and accumulated precipitation until the collected material is detected and removed. Include the base or liner characteristics and manufacturers' specifications for all concrete, asphaltic, and membrane liners. Document that the types of waste to be stored in the pile will be compatible with the liner or base. Discuss which wastes will be contained and how these will be combined. State the estimated life of the hazardous waste pile and show that the containment system will have a containment life equal to or greater than the life of the pile.

D-3a(5)(b) Leachate Detection, Collection and Removal System [40 CFR Sections 122.25(b)(4)(i)(B)(6) and 264.253(a)]

If the base liners are not of sufficient strength and thickness to prevent failure due to physical damage from equipment used to clean and expose the liner surface for inspection, describe the leachate detection, collection, and removal system situated beneath the base to detect, contain, collect, and remove any discharge. Demonstrate that the system under the base is above the water table, or describe any necessary efforts to control the water table.

D-3a(6) Vegetation and Rodent Control [40 CFR Sections 122.25(b)(4)(i)(C)(1) and 264.253(c)]

Describe precautions taken to protect the waste pile base or liner and its components from plant growth that might puncture it and cause a failure. Indicate any precautions provided to prevent puncture by rodents or other ground-burrowing animals.

D-3a(7) Equipment and Procedures for Waste Pile Movement [40 CFR Sections 122.25(b)(4)(i)(C)(3)]

Describe all the facility equipment and operational procedures used to add waste to the pile or to remove waste from the pile, or to expose the liner surface for cleaning.

D-3b Waste Piles Without Free Liquids [40 CFR Section 122.25(b)(4)(ii)]

D-3b(1) Test for Free Liquids [40 CFR Section 122.25(b)(4)(ii)(A)

Provide test procedures and results or other documentation or information to show that the piled wastes do not contain free liquids. Also show that the wastes will not generate leachate by decomposition or other reactions during the time they are managed in the waste pile.

D-3b(2) Control of Wind Dispersal [40 CFR Sections 122.25(b)(4)(ii)(C) and 264.250(b)(4)]

Provide descriptions similar to those for controlling wind dispersal for waste piles having free liquids, D-3a(1).

D-3b(3) Protection from Precipitation and Run-on [40 CFR Sections 122.25(b)(4)(ii)(B), 264.250(b)(2)], and 264.250(b)(3)

Describe how the pile is protected from precipitation and run-on by a structure or cover so that neither runoff nor leachate is generated. Include a detailed description of the structure. Also describe how the pile is protected from surface water run-on.

D-3b(4) Demonstration That No Free Liquids Are Placed on Pile [40 CFR Sections 122.25(b)(4)(ii)(D)(2) and 264.250(b)(1)]

Describe procedures to insure that liquids or materials containing free liquids are not placed on the pile; i.e., by performing a waste analysis test for free liquids [see D-1b(1)] or testing the waste upon receipt at the facility and handling it appropriately before placement on the pile (Reference 31).

D-4 Surface Impoundments [40 CFR Sections 122.25(b)(3) and 264.220-264.223]

This section has been reserved until this document is expanded to address existing facilities that treat or store hazardous wastes in surface impoundments.

D-5 Incinerators [40 CFR Sections 122.25(b)(5) and 264.340-264.351]

This section has been reserved until this document is expanded to include requirements for existing incinerators.

E. GROUNDWATER MONITORING [40 CFR Section 265.90-265.94]

This section has been reserved until this document is expanded to include information on land disposal facilities.

F. PROCEDURES TO PREVENT HAZARDS

F-1 Security

Describe the security procedures and equipment identified below, or provide a request and substantiation for a waiver of any of these requirements.

F-1a Security Procedures and Equipment [40 CFR Sections 122.25 (a)(4) and 264.14]

The permit applicant has the option of fulfilling the requirements of either F-1a(1) or F-1a(2).

F-1a(1) 24-hour Surveillance System [40 CFR Section 264.14(b)(1)]

Describe the system used to monitor and control entry to the active portion of the facility. If possible, all related structures and equipment should be indicated on a plot plan. If a 24-hour surveillance system is used, describe all facets of the system, including personnel, procedures, structures, and equipment used (Reference 32).

F-1a(2) Barrier and Means to Control Entry [40 CFR Section 264.14 (b)(2)(i) and (ii)]

If a fence or wall is used to control entry, indicate height, type of material, and locking devices of the barrier. Describe how entry is controlled at all times (Reference 32).

F-1a(3) Warning Signs [40 CFR Section 264.14(c)]

Indicate the location of required warning signs. If the facility is in an area where any language other than English is commonly used, indicate the language and include the legend of posted signs. Indicate that warning signs are legible from at least 25 feet.

F-1b Waiver [40 CFR Section 264.14(a)]

If you belive a waiver of any of the requirements of 264.14 is appropriate, you must demonstrate that unknowing or unauthorized persons or livestock would not injure themselves or cause a RCRA violation upon entering the active portion of a facility. Both these points may be demonstrated by showing that the nature and duration of the hazard potential from the hazardous waste onsite does not warrant the required security procedure or equipment. In addition, if you can show that your facility provides certain features, such as cover materials or containers, that would prevent contact with the waste or potentially hazardous contact with equipment or structures, certain security procedures and equipment might not be needed. Finally, a waiver justification could show that safety or operating practices related to equipment and structures would eliminate the potential for an intruder to cause a spill, mix incompatible wastes, ignite ignitable or reactive waste, damage containment or monitoring systems, etc. The circumstances under which a waiver will be granted are limited (Reference 28).

F-2 Inspection Schedule [40 CFR Sections 122.25(a)(5), 264.15]

Provide a copy of the general inspection schedule (see Table 8 of the Model Permit Application in Part 2 of this document). The inspection schedule should be broken down into general inspection requirements and specific process inspection requirements, as shown. For both general and specific inspection requirements, reference in the schedule any inspection procedures or frequencies the manufacturer has recommended for any equipment or structures. In addition, state that the inspection schedule will be kept at the facility.

F-2a General Inspection Requirements [40 CFR Sections 264.15(a) and (b) and 264.33]

The inspection schedule should indicate the safety, emergency, and security devices and monitoring, operating, and structural equipment to be inspected. Examples of the this equipment are flow and liquid level monitors, leachate monitors, hazardous gas detectors, respirators, alarm and communication systems, emergency power and lighting, fire protection and control equipment, smoke detectors, first aid equipment, decontamination equipment, surveillance systems, barriers surrounding the facility, locking devices, fire and explosion barriers, ventilation equipment, and spill detection, control, and collection equipment. The inspection plan must include areas inside and outside buildings where hazardous waste is handled (References 33, 34, 35, 32, 36).

F-2a(1) Types of Problems [40 CFR Section 264.15(b)(3)]

The schedule must identify the types of problems that are to be looked for during the inspection (e.g., malfunctions, deteriorations, inoperative sump pumps, leaking fittings, and eroding dikes).

F-2a(2) Frequency of Inspection [40 CFR Section 264.15(b)(4)]

The schedule must identify the frequency of inspection for the items on the schedule. The frequency may vary; it should be based on the rate of possible deterioration of the equipment and the probability of an environmental or human health incident if the deterioration, malfunction, or any operator error should go undetected between inspections. Areas subject to spills (e.g., loading and unloading areas) must be inspected daily when in use.

F-2b Specific Process Inspection Requirements

F-2(b)(1) Container Inspection [40 CFR Section 264.174]

Describe in detail how at least weekly inspections are performed in areas where containers are stored. Describe procedures and elaborate on methods used to detect leaking containers. Indicate how the inspection includes careful status checks for the deterioration of containers and the containment system as a result of corrosion or other factors.

F-2(b)(2) Tank Inspection [40 CFR Sections 264.194(a) and (b)]

Describe in detail how each of the tanks and its related facility components are inspected on a scheduled weekly or daily basis, as required. Provide a list of equipment and parts to be inspected. Describe how the tank construction materials of the above-ground external portions of the tank are inspected weekly (while the tank remains in service) to detect corrosion or erosion and leaking of fixtures and seams. Discuss how the area immediately surrounding the tank is inspected weekly to detect obvious signs of leakage. Specify how tank overfill control equipment, such as waste feed cutoff systems and bypass systems, are inspected daily to ensure good working order. Describe the daily inspection procedures undertaken to ensure that the tank is being operated according to its design (by types of data gathered from tank monitoring equipment). For uncovered tanks, describe how the level of waste is measured daily to ensure maintenance of sufficient freeboard to prevent overtopping by wave or wind action or by precipitation.

Elaborate on the schedule, and document the methods used for comprehensive inspection of the tank interior to detect cracks, leaks, corrosion, or erosion that may lead to wall thinning to less than sufficient shell strength. Discuss established procedures for emptying the tank to allow entry and inspection of the interior. The frequency of these inspection assessments must be based on the tank's material of construction, the type of corrosion or erosion protection used, the rate of corrosion or erosion observed during previous inspections, and the characteristics of the waste being treated or stored (References 37, 38, 39, 40, 41).

F-2(b)(3) Waste Pile Inspection [40 CFR Sections 264.254(a) and 264.255]

Describe how liner systems were inspected for uniformity, damage, and imperfections during the construction or installation of the waste pile base, and how manufactured liner materials are inspected to ensure tight seams and joints and the absence of tears and blisters. Describe how the containment system is inspected whenever there is any indication of possible failure (Reference 42).

F-2c Remedial Action [40 CFR Sections 264.15(c) 264.194(c) and 264.255]

Describe procedures for ensuring that any deterioration or malfunction of equipment or structures revealed by the inspection will be remedied on a schedule that prevents an environmental or human health hazard. Procedures identified in the contingency plan that describe remedial actions to be taken in the event of potential hazard can be referenced in this section.

F-2d Inspection Log [40 CFR Section 264.15(d)]

Provide a copy of the inspection log. (Example is provided in Supplement 1-B of the Model Permit Application in Part 2 of this document.) At a minimum, these records must include the date and time of the inspection, the name of the inspector, a notation of the observations made, and the date and nature of any repairs or other remedial actions.

F-3 Waiver of Preparedness and Prevention Requirements [40 CFR Sections 122.25(a)(6), 264.32, and 264.35]

If you wish to request a waiver for preparedness and prevention requirements, you must provide the following:

F-3a Equipment Requirements [40 CFR Section 264.32]

Justification showing that none of the hazards posed by waste handled at the facility could require the following specified equipment: internal and external communications equipment, spill- and fire-control equipment, decontamination equipment, and water at adequate volume and pressure for fire control (References 28, 33, 35, 36, 43).

F-3b Aisle Space Requirement [40 CFR Section 264.35]

Justification showing that aisle space is not needed for unobstructed movement of emergency personnel and equipment.

F-4 Preventive Procedures, Structures, and Equipment [40 CFR Section 122.25(a)(8)]

Applicable procedures, structures, and equipment addressed in other sections may be repeated or referenced to demonstrate compliance with any of the following requirements:

F-4a Unloading Operations [40 CFR Section 122.25(a)(8)(i)]

Describe the procedures, structures, and equipment that will be used to prevent hazards in unloading hazardous waste (Reference 28).

F-4b Runoff [40 CFR Section 122.25(a)(8)(ii)]

Describe the procedures, structures, and equipment that will be used to prevent runoff from hazardous waste handling areas to other areas of the facility or to prevent flooding (References 44, 45).

F-4c Water Supplies [40 CFR Section 122.25(a)(8)(iii)]

Describe the procedures, structures, and equipment that will be used to prevent contamination of water supplies.

F-4d Equipment and Power Failure [40 CFR Section 122.25(a)(8)(iv)]

Describe procedures and equipment for mitigating the effects of equipment failure and power outages, such as waste feed shutoff systems or emergency lighting.

F-4e Personnel Protection Equipment [40 CFR Section 122.25(a)(8)(v)]

Describe procedures, structures, and equipment for preventing undue exposure of personnel to hazardous waste, such as ventilation equipment or protective clothing. If the facility must meet any applicable OSHA requirements, state them (References 34, 46).

F-5 Prevention of Ignition or Reaction of Ignitable, Reactive, or Incompatible Wastes

F-5a Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Waste [40 CFR Sections 122.25(a)(9) and 264.17(a)]

List each of the ignitable and reactive wastes to be stored at the facility. Describe the precautions for preventing sparking of ignitable or reactive wastes handled on site. Describe how the wastes are separated and protected from sources of ignition or reaction, such as open flames, smoking, cutting and welding, hot surfaces, frictional heat, sparks (static, electrical, or mechanical), and spontaneous ignition (e.g., from heat-producing chemical reactions and radiant heat). Describe how smoking and open flames are confined to specifically designated locations when ignitable or reactive wastes are being handled, and how "No Smoking" signs are conspicuously placed wherever there is a hazard from such wastes (References 7, 25).

F-5b General Precautions for Handling Ignitable or Reactive Waste or to Prevent Accidentally Mixing Incompatible Waste [40 CFR Sections 122.25(a)(9), 264.17(b)]

Describe onsite precautions taken for handling ignitable or reactive wastes and measures taken to prevent the mixing of incompatible wastes or the mixing of other materials and wastes that are incompatible. Reactions that must be prevented are those that (1) generate extreme heat, pressure, fire, explosions, or violent reactions; (2) produce uncontrolled flammable fumes, dusts, or gases in sufficient quantities to threaten human health or the environment; (3) produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions; (4) damage the structural integrity of the device or facility; (5) through other like means may threaten human health or the environment (References 47, 48).

F-5c Management of Ignitable or Reactive Wastes in Containers . [40 CFR Sections 122.25(b)(1)(iii) and 264.176]

Use sketches, drawings, or data to demonstrate how containers of ignitable or reactive waste are located at least 15 meters (50 feet) from the site property line (Reference 33).

F-5d Incompatible Wastes in Containers [40 CFR Sections 122.25(b)(1)(iii), and 264.177]

Describe the specific controls and/or practices utilized to ensure that incompatible wastes or wastes and other materials that are incompatible are not placed in the same container unless precautions are taken to prevent the reactions described in section F-5b - General Precautions for Handling Ignitable or Reactive Waste or to Prevent Accidentally Mixing Incompatible Waste. Include any documentation of compliance based on references to published scientific or engineering literature, data from trial tests, waste analyses, or the results of the treatment of similar wastes by a comparable treatment process and under similar operating conditions.

Discuss how storage containers holding a hazardous waste incompatible with any other waste or materials that are stored nearby in other containers, piles, open tanks, or surface impoundments are separated or protected from the other materials by means of a dike, berm, wall, or other structure. Include a drawing to show separation of incompatible wastes (Reference 49).

F-5e Management of Ignitable or Reactive Wastes in Tanks [40 CFR Sections 122.25(b)(2)(vi) and 264.198]

Provide specific information of how ignitable or reactive wastes destined for tank storage are treated, rendered, or mixed before or immediately after placement in the tank. Indicate the general precautions that are taken for handing either ignitable or reactive waste when such wastes are destined for tank storage or how these wastes are stored or treated to protect them against any materials or conditions that may cause their reaction or ignition. State if the tank is reserved solely for use in emergencies. Demonstrate compliance with the National Fire Protection Association's buffer zone requirements contained in Tables 2-1 and 2-6 of the "Flammable and Combustible Code - 1977" for covered tanks used for the treating or storing of reactive or ignitable wastes (Reference 33).

F-5f Management of Incompatible Wastes in Tanks [40 CFR Sections 122.25(b)(2)(vi) and 264.199(b)]

Describe operating procedures to insure that a hazardous waste will not be placed in an unwashed tank that previously held an incompatible waste or material unless precautions are taken to prevent the reactions described in Section F-5b - General Precautions for Handling Ignitable or Reactive Waste or to Prevent Accidentally Mixing Incompatible Wastes (Reference 33).

F-5g Management of Ignitable or Reactive Wastes in Waste Piles [40 CFR Sections 122.25(b)(4)(ii)(D)(1), 261.21, 261.23, 264.17(b), 264.256]

Describe operating procedures to insure that an ignitable or reactive waste is placed in a pile only if the addition of that waste to an existing pile results in the waste or mixture no longer meeting the definition of ignitable or reactive waste. The waste pile must be shown to comply with Section F-5b - General Precautions for Handling Ignitable or Reactive Waste or to Prevent Accidentally Mixing Incompatible Wastes. Alternatively, describe the preventive measures that are taken to protect the waste from conditions that might cause it to ignite or react.

F-5h Management of Incompatible Wastes in Waste Piles [40 CFR Sections 122.25(b)(4)(i)(C)(4), 122.25(b)(4)(ii)(D)(1), 264.17(b) and 264.257]

Describe operating procedures ensuring that incompatible wastes are placed in the same pile only when in compliance with section F-5b - General Precautions for Handling Ignitable or Reactive Waste or to Prevent Accidentally Mixing Incompatible Waste. Describe precautions for adequate buffer or protection of incompatible waste piles from other wastes or material stored at the facility. If the bases are to be reused for hazardous waste, describe how any bases on which incompatible wastes or materials previously had been piled are sufficiently decontaminated to ensure compliance with section F-5b - General Precautions for Handling Ignitable or Reactive Waste to Prevent Accidentally Mixing Incompatible Wastes.

G. CONTINGENCY PLAN [40 CFR Sections 122.25(a)(7) and 264.50-264.56]

The contingency plan should describe the actions to be taken by facility personnel in response to fires, explosions, or the release of hazardous waste. The following sections outline the requirements for describing these actions and other regulatory requirements. If a Spill Prevention, Control, and Countermeasures (SPCC) Plan (in accordance with 40 CFR Part 122 or Part 151) or some other contingency plan has already been prepared, the plan need only be amended to incorporate hazardous waste management provisions that are sufficient to comply with the requirements of this part. Demonstrate that the contingency plan will be reviewed and amended under any of the following conditions: whenever the facility permit is revised, if the plan should fail in an emergency, if the facility's operations should change in a way that would alter the contingency plan, or if the list of emergency coordinators or emergency equipment should change.

G-1 General Information

Give the name and location of the facility and the operator's name. Include a site plan and description of facility operations.

G-2 Emergency Coordinators [40 CFR Sections 264.52(d) and 264.55]

Give name, address, office and home phone numbers of primary and alternate emergency coordinators, and a statement of authorization for them to commit necessary resources to implement the contingency plan. If more than one person is listed as Emergency Coordinator, one must be named as primary Emergency Coordinator and others listed in the order in which they will assume responsibility.

G-3 Implementation of the Contingency Plan [40 CFR Section 264.51(b)]

State criteria for implementation of the contingency plan for any potential emergency.

G-4 Emergency Response Procedures

G-4a Notification [40 CFR Section 264.56(a)]

State methodology for immediate notification of facility personnel and required state and local agencies in the event of an emergency (Reference 50).

G-4b Identification of Hazardous Wastes [40 CFR Section 264.56 (b)]

Describe procedures for identification of hazardous materials involved in the emergency (Reference 50).

G-4c Assessment [40 CFR Sections 264.56(c) and (d)]

State the policy for assessment of possible hazards to the environment and human health and the need for evacuation of residents and notification of authorities. Authority notification should include the appropriate local authorities and the government on-scene coordinator for that area or the National Response Center (use their 24-hour toll free number 800/424-8802) (References 28, 50, 51, 52, 53).

G-4d Control Procedures [40 CFR Section 264.52(a)]

Describe the specific control procedures to be taken in the event of a fire, explosion, or hazardous waste release. The contingency plan should examine potential emergency situations and outline planned responses (Reference 31, 50, 53).

G-4e Prevention of Recurrence or Spread of Fires, Explosions, or Releases [40 CFR Section 264.56(e)]

Describe the necessary steps to be taken to ensure that fires, explosions, or hazardous waste releases do not occur, recur, or spread to other hazardous wastes at the facility. This should include stopping processes and operations, isolating the materials involved in the emergency, and containing and collecting any wastes that have been released. In addition, if the facility stops operations in response to an emergency, the emergency coordinator must monitor for leaks, pressure buildup, gas generation, or ruptures in valves, pipes, or other equipment, wherever appropriate (References 50, 53).

G-4f Storage and Treatment of Released Material [40 CFR Section 264.56(g)]

Discuss provisions for treatment, storage, or disposal of any material that results from a release, fire, or explosion at the facility.

G-4g Incompatible Wastes [40 CFR Section 264.56(h)(1)]

Discuss provisions for preventing incompatible wastes from being treated, stored, or disposed of in the affected areas before cleanup procedures have been completed.

G-4h Post-Emergency Equipment Maintenance [40 CFR Section 264.56 (h)(2)]

Describe procedures for ensuring that all emergency equipment listed in the contingency plan is clean and fit for its intended use before operations are resumed.

G-4i Container Spills and Leakage [40 CFR Section 264.171]

Describe the procedures for response to container spills or leakage, including remedial procedures and timing for expeditious removal of spilled waste and repair or replacement of the container(s). Describe the availability of machinery, equipment, and personnel to be used as cleanup resources and how they will be utilized. Discuss the procedures for repair or disposal of the damaged containers, the management of spilled or leaked waste, and the decontamination process during incident mitigation.

G-4j Tank Spills and Leakage [40 CFR Section 264.194(c)]

Describe the procedures for response to tank spills or leakage, including remedial procedures and timing for expeditious removal of leaked or spilled waste and repair or removal of the tank. At a minimum, address the following kinds of incidents:

- Overfilling of tanks
- Rupture of tanks
- Leaks in tanks, pipes, valves and fittings
- Leaks in containment dikes
-

- Water flow from diked area through open dike valve
- Leaks from pump seals and maintenance
- Level instrument failure that allows tank overfilling
- Piping damage from collision with mobile equipment
- Spills from tank bottom cleanout and sludge disposal
- Spills from pipe and tank changes

Describe the availability of machinery, equipment, and personnel to be used as cleanup resources and how they will be utilized. Discuss the management of spilled or leaked waste and the decontamination process during incident mitigation (References 33, 53).

G-4k Waste Piles

G-4k(1) Indication of Waste Pile Containment System Failures [40 CFR Section 264.255(a)]

Describe the mechanism by which indications of possible failure of the waste pile containment system will result in inspection of that system in accordance with the provisions of a containment system evaluation and repair plan. Indications of possible failure of the containment system;

include appearance of liquid in the leachate detection system, erosion of the base, evidence of leakage or potential of leakage in the base, and the apparent or potential deterioration of liner(s) (based on observation or test samples of liner materials).

G-4k(2) Elements of a Containment System Evaluation and Repair Plan [40 CFR Section 264.255(d)(2)]

Provide a containment system evaluation and repair plan that describes testing and monitoring techniques and procedures to be followed to evaluate the integrity of the containment system in the event of a possible failure. Include a schedule of actions to be taken in the event of a possible failure and a description of the repair techniques to be used in the event of leakage due to containment system failure or deterioration that does not require the removal of the waste pile from service.

G-4k(3) Criteria and Procedures for Removal of Waste Pile from Service in Case of Positive Failure of the Containment System [40 CFR Sections 264.255(b) and (c) and 264.255 (d)(1)]

Show that provision is made for the waste pile to be removed from service whenever there is a positive indication of a failure of the containment system. Describe a procedure for removal of the waste pile from service, and give details of the cleanup resources to be implemented and how they will be utilized.

G-4k(4) Restoration of a Waste Pile to Service [40 CFR Section 264.255(e)]

Describe the conditions under which a waste pile that has been removed from service will be restored to service.

Show that a qualified engineer will certify that the containment system meets the design specifications approved in the RCRA permit.

G-4k(5) Course of Action After Waste Pile is Removed From Service [40 CFR Sections 264.255(f) and 264.258]

Describe what happens to a waste pile containment system that is no longer in use and will not be used in the future. Show that you either are meeting or will meet closure requirements for this system (Reference 54).

G-5 Emergency Equipment [40 CFR Section 264.52(e)]

Give the location, description, and capabilities of all emergency equipment available. If possible, indicate the location of emergency equipment on a site plan or plant layout. Such equipment includes, but is not be limited to, fire extinguishing equipment, spill-control equipment, alarm systems, communication systems, decontamination equipment, and personal protection equipment (References 28, 34, 35, 36, 50).

G-6 Coordination Agreements [40 CFR Sections 264.52(c) and 264.37]

Describe any coordination agreements with local agencies, contractors, or hospitals involved in emergency response that have been made or refused pursuant to Section 264.37. The contingency plan must list these organizations, detail what information (facility layout, waste properties, etc.) has been made available to them, describe potential situations that could necessitate such assistance, and outline the lines of authority that will be followed in each situation.

G-7 Evacuation Plan [40 CFR Section 264.52(f)]

Provide a detailed description of the evacuation plan, including planned and alternate evacuation routes (if necessary) and the signals for beginning an evacuation.

G-8 Required Reports [40 CFR Section 264.56(d), 264.56(i) and 264.73(b)(4)]

Discuss provisions for submission of written reports of emergency incidents within 15 days of occurrence and the maintenance of records identifying the time, date, and details of any emergency incident.

H. PERSONNEL TRAINING

H-1 Outline of Training Program [40 CFR Sections 122.25(a)(12) and 264.16]

Provide an outline of both the introductory and continuing training programs used to prepare persons to operate or maintain the facility in a safe manner. Describe briefly how training will be designed to meet actual job tasks. Supervised on-the-job training may be used to comply with requirements in this section (Reference 55).

H-1a Job Titles and Duties [40 CFR Sections 264.16(d)(1) and (2)]

Indicate the name, job title, duties, and job description of each employee filling a position related to hazardous waste management at the facility.

H-1b Training Content, Schedules, and Techniques [40 CFR Sections 264.16(c) and 264.16(d)(3)]

Describe the content, frequency, and techniques used in both introductory and continuing training, including an annual review of the initial training for each employee. You must present and discuss the following points: personnel safety training; release prevention and response; decontamination procedures for personnel equipment, and tools; facility operation and maintenance; high-hazard operations; maintenance of required facility documentation; hazards associated with each waste; and applicable RCRA and state hazardous waste regulations (Reference 55).

H-1c Training Director [40 CFR Section 264.16(a)(2)]

Show that the program is directed by a person trained in hazardous waste management. Specify the training director's experience and qualifications.

H-1d Relevance of Training to Job Position [40 CFR Section 264.16(a)(1)]

Show that the program includes instruction on hazardous waste management procedures (including contingency plan implementation) relevant to the positions held by personnel.

H-1e Training for Emergency Response [40 CFR Section 264.16(a)(3)]

Show that the program is designed to ensure that facility personnel are able to respond effectively to emergencies by familiarizing them with the following: contingency plan and emergency procedures, including inspecting, repairing, and replacing facility emergency and monitoring equipment; key parameters for automatic waste feed cutoff systems; communication and alarm systems; response to fires, explosions, or releases; responses to groundwater contamination incidents; shutdown of operations and evacuation (References 34, 55).

H-2 Implementation of Training Program [40 CFR Sections 264.16(d)(4) and 264.16(b)]

For existing facilities, indicate that training has been given to and successfully completed by facility personnel within 6 months after the date of their employment or assignment to a facility, or to a new position at a facility, whichever is later. Employees hired after the effective date of these regulations must not work in unsupervised positions until they have completed the training requirements. Explain the methodology used by the facility to verify that employees have successfully completed training. Records documenting that facility personnel have completed the required training must be maintained. Indicate that training records on current personnel must be kept until closure of the facility, and records for former employees must be kept for 3 years after they leave.

I. CLOSURE PLANS, POST-CLOSURE PLANS AND FINANCIAL REQUIREMENTS [40 CFR Sections 122.25(a)(13) and 264.110-120]

I-1 Closure Plans (40 CFR Sections 264.112 and 122.25(a)(13))

A written closure plan must be submitted with the permit application. The closure plan must identify the steps necessary for complete or partial closure of the facility at any point during its intended operating life and for complete closure of the facility at the end of its intended operating life. If changes in the operating plans or facility design affect the closure plan or if there is a change in the expected year of closure, the closure plan must be amended. For example, changes in any of the following should result in a modification of the closure plan: facility size/capacity; types and quantities of wastes on site at maximum closure inventory; schedule for partial and final closure; and schedules for periodic maintenance and inspection activities. Changes in technical considerations also can result in closure plan modification; for example, the application of new technology or changes in monitoring requirements, operating contingencies, land-use patterns around the facility, and the response of Regional Administrators to petitions by owners/operators.

A copy of the approved plan and all revisions to the plan must be kept on site until the certification of closure completeness has been submitted and accepted by the EPA. The owner or operator must notify the Regional Administrator at least 180 days prior to the date closure is expected to begin. Upon completion of the closure, it is necessary to submit to the Regional Administrator a certification by either the owner or operator and an independent registered professional engineer that the facility has been closed in accordance with the specifications in the approved closure plan.

A permit modification may be required for a closure plan amendment. The elements in the sections that follow should be included in the closure plan (References 54, 56).

I-1a Closure Performance Standard [40 CFR Section 264.111]

Describe how the facility will be closed in a manner that minimizes the need for further maintenance and controls; minimizes or eliminates threats to human health and the environment; and avoids post-closure escape of hazardous waste, hazardous waste constituents, leachate, contaminated rainfall, or waste decomposition products to ground or surface waters or to the atmosphere.

I-1b Partial and Final Closure Activities [40 CFR Section 264.122(a)(1)]

Describe any plans for partial closure and the circumstances under which the facility will undergo partial closure. Partial closure applies when a portion of the hazardous waste facility is to be closed at any time during the operating life of the facility (e.g., removal of a tank or waste pile from service or capping of portions of a landfill as they are filled). The procedures you will follow for partial or complete closure of the facility at any point during its intended operating life, and for complete closure of the facility at the end of its intended operating life. Identify the date of final closure. Identify the maximum extent of the hazardous waste facility that will remain open during the life of the facility (References 54, 56).

I-1c Maximum Waste Inventory [40 CFR Section 264.112(a)(2)]

Describe the maximum inventory of wastes in storage and treatment at any time during the life of the facility. Actual amounts of waste should be indicated in the appropriate units for each type of facility (References 54, 56).

I-1d Inventory Removal, Disposal, or Decontamination of Equipment [40 CFR Section 264.112(a)(3)]

Describe the steps needed to decontaminate facility equipment during final closure, the labor force you intend to use to perform decontamination (in-house or outside contractor), and your criteria for determining contamination. Name each piece of equipment and/or structures (e.g., waste feed systems, bypass systems, drainage systems, conveyors, transport containers, piping, pumps, valves, heat exchangers, compressors, discharge confinement structures such as dikes) and procedures for cleaning (e.g., steam-cleaning, hydroblasting). Describe the amounts of contaminated soil to be disposed of on and off the site, and describe the criteria used to determine the amount of contaminated soil. Describe the method for processing, treating, or disposing of residues from decontamination (including decontaminant solutions, wastewater, and liquid wastes). Describe the testing program to be used to determine if decontamination has been effective for each piece of equipment and/or structure and surrounding soils (e.g., laboratory procedures, kits, mechanical, electrical, or visual methods). Describe the method of transport to the disposal site (e.g., truck, rail, water), the distance of transport to the disposal site, and the final disposal method (e.g., facility type such as a secure landfill) (Reference 57).

I-1d(1) Closure of Containers [40 CFR Section 264.178]

Describe in detail how, at closure, all hazardous wastes and hazardous waste residues will be removed from the container storage area, and how containers and the containment system will be removed or decontaminated. Describe safety precautions and procedures to protect the labor force during the operation. Show how the effectiveness of decontamination will be determined. Also describe the fate of all removed hazardous waste and waste residues and how containers, containment linings, contaminated solids, and decontamination washes will be handled and disposed of.

Provide an estimate of the maximum inventory of waste stored in containers at any time during the life of the facility.

I-1d(2) Closure of Tanks [40 CFR Section 264.197]

Describe in detail how, at closure, all hazardous wastes, hazardous waste residues, and flammable or toxic vapors will be removed from tanks, associated piping, discharge control equipment, and the discharge confinement structure. Describe how all components will be decontaminated. Describe preparation steps before testing and cleaning (after the waste has been removed from the tanks) such as ventilation and gas testing, assurances for safe entry and exit, and safety protection for the cleaning crews. Also describe the fate of all hazardous wastes and hazardous waste residues removed from the tanks and associated structures and how decontamination washes and contaminated soil will be handled and disposed of. Describe any waste processing or treatment methods, if required, prior to transport or disposal (e.g., neutralization, stabilization, solidification). Describe the volume of waste that will be processed or treated and the volume of waste that will result from such processing/treatment (Reference 58).

Provide an estimate of the maximum inventory of wastes in storage tanks and in tank treatment at any time during the life of the facility.

I-1(d)(3) Closure of Waste Piles [40 CFR Section 264.258]

Describe in detail how, at waste pile closure, all hazardous waste and hazardous waste residues will be removed and how any component of the containment system containing or contaminated with hazardous wastes or hazardous waste residues will be removed or decontaminated. Also describe the fate of all hazardous wastes and waste residues removed from the pile and associated structural containment components, and how linings, contaminated soils, and decontamination washes will be handled and disposed of.

Provide an estimate of the maximum inventory of wastes stored in piles at any time during the life of the facility.

I-1e Schedule for Closure [40 CFR Section 264.112(a)(4)]

Provide an estimate of the expected year of closure. The closure schedule must include the total time required to close the facility and a milestone schedule depicting the time required for intervening closure activities.. This will allow tracking of the progress of closure. Include provisions in the plan for scheduling several periodic inspections during the closure period.

The milestone schedule should show that all hazardous wastes will be treated, removed from the site, or disposed of on the site within 90 days of receipt of the final volume of waste and that all closure activities will be completed within 180 days from receipt of the final volume of waste.

I-1f Extensions for Closure Time [40 CFR Sections 264.113(b) (264.113(a)]

In the event a longer period of closure time is needed than that specified in 40 CFR 264.113(a) and (b), you must demonstrate one of the following: the activities will necessarily take longer than 180 days to complete; the facility has the capacity to receive additional wastes; a person other than the owner or operator will recommence operation of the site; or closure of the facility would be incompatible with continued operation of the site. You must also demonstrate that all steps have been and will continue to be taken to prevent threats to human health and the environment from the unclosed but inactive facility.

I-2 Post-Closure Plans

These requirements apply only to disposal facilities that are not addressed in this manual.

I-3 Notice in Deed and Notice to Local Land Authority

These requirements apply only to disposal facilities that are not addressed in this manual.

I-4 Closure Cost Estimate [40 CFR Sections 122.25(a)(15) 264.142)

Provide a written, dated estimate, in current dollars, of the cost of closing the facility in accordance with the closure plan. The closure cost estimate must equal the cost of closure at the point in the facility's operating life when the extent and manner of its operation would make closure the most expensive, as indicated by its closure plan. Adjust the closure cost estimate for inflation within 30 days after each anniversary of the date on which the first closure cost estimate was prepared.

Revise closure cost estimates annually to adjust for inflation by using a factor derived from the annual Implicit Price Deflator for Gross National Product, as published by the Department of Commerce in the Survey of Current Business. An illustration of the calculation is shown in the following hypothetical example, which uses the price deflators given in Table 1 adopted from the Survey of Current Business. (See next page).

Previous year cost estimate = $50,000

Previous year deflator = $177.36

Current year deflator = $193.71

After rounding off to the nearest whole number, the inflation factor is computed as 194/177 = 1.096. The current year cost is then:

1.096 x $50,000 = $54,800

The closure cost estimate must also be revised whenever a change in the closure plan increases the cost of closure and the revised estimate must be adjusted for inflation in the previously described manner.

The owner or operator is required to keep the following items at the facility throughout the operating life of the

TABLE 1. IMPLICIT PRICE DEFLATORS
1972 WEIGHTS, FOR GROSS NATIONAL PRODUCT[a]

	Implicit price deflators, 1972 = 100							
	Seasonally adjusted							
	1980	1981	1980	1981				1982
			IV	I	II	III	IV	V
Gross national product	177.36	193.71	183.81	188.14	191.06	195.61	200.10	201.88
Personal consumption expenditures	178.9	193.7	184.9	188.5	191.5	195.7	199.3	201.8
Durable goods	156.0	166.4	160.5	162.3	165.4	168.3	170.1	171.9
Nondurable goods	188.6	202.4	195.2	199.2	200.4	203.7	206.2	207.2
Services	178.1	195.2	184.3	188.4	192.2	197.6	202.3	206.3
Gross private domestic investment								
Fixed investment	194.2	209.2	199.9	203.1	208.4	210.9	214.7	215.5
Nonresidential	186.8	202.5	192.4	195.0	201.4	204.5	208.8	209.3
Structures	224.7	246.3	233.3	236.2	244.1	249.2	255.3	258.4
Producers' durable equipment	170.2	182.4	174.5	176.8	182.0	184.0	186.7	186.2
Residential	218.6	233.3	223.3	228.7	231.8	235.4	238.8	242.0
Nonfarm structures	221.7	236.8	226.3	231.8	235.0	239.1	242.9	246.1
Farm structures	219.9	235.5	224.2	229.6	233.4	237.6	241.2	245.3
Producers' durable equipment	149.4	159.4	152.4	155.2	158.0	161.5	163.1	166.1
Change in business inventories								
Net exports of goods and services								
Exports	211.0	229.0	219.9	226.1	228.0	229.8	232.2	233.6
Imports	290.1	295.5	296.4	303.1	301.2	289.8	288.5	289.3

TABLE 1 (continued)

	Implicit price deflators, 1972 = 100 Seasonally adjusted							
	1980	1981	1980	1981				1982
			IV	I	II	III	IV	V
Government purchases of goods and services	184.4	202.7	192.8	196.4	199.5	204.2	210.6	212.3
Federal	183.9	206.4	197.4	199.4	201.9	206.6	217.2	216.2
National defense	185.6	208.8	196.8	201.2	204.2	208.3	220.8	223.1
Nondefense	180.6	201.7	198.7	195.9	197.3	203.1	210.3	203.3
State and local	184.7	200.3	190.0	194.5	198.0	202.8	206.1	209.8

[a]Source: Adapted from Department of Commerce Survey of Current Business, Gross Product by Industry, 1981, Table 7.1-7.2.

facility: the latest closure cost estimate (as previously defined) and, when this estimate has been adjusted for inflation, the latest adjusted closure cost estimate.

I-5 Financial Assurance Mechanism for Closure [40 CFR Sections 122.25(a)(1) and 264.143]

State which of the following mechanisms is used.

1. Closure trust fund
2. Surety bond guaranteeing payment into a closure trust fund
3. Surety bond guaranteeing performance of closure
4. Closure letter of credit
5. Closure insurance
6. Financial test and corporate guarantee for closure

A fully executed financial assurance mechanism(s) must be made available at the time of permit issuance. In states that have only Phase I authorization, provide a completed but unexecuted copy of financial assurance mechanism(s) for closure in the Part B application.

Originally signed copies of each of the chosen instruments must be delivered to the Regional Administrator. When a mechanism is used for multiple facilities, submit criteria of financial assurance to the Regional Administrator in each region where the mechanism is applied; include a list showing the EPA identification number, name, address, and the amount of funds for closure assumed by the mechanism for each covered facility.

In states that do not have Phase I authorization, existing facilities were required to submit a copy of financial assurance mechanism(s) by July 6, 1982. In states that have Phase I or Phase II authorization, facilities must comply with the applicable state laws and regulations. (Note: An owner or operator of a new facility must have the chosen instrument delivered to the Regional Administrator by certified mail at least 60 days before the date on which hazardous waste is first received, and the instrument must become effective no later than the date of first receipt.) Instruments must be revised as appropriate, and evidence must be submitted to the Regional Administrator within 60 days of the revision to the current cost estimate for closure of a facility (Reference 59).

I-5a Closure Trust Fund [40 CFR Sections 264.143(a) and 264.151(a)(1)]

A trust fund is a mechanism whereby the site owner or operator sets aside funds in the form of cash or marketable securities to pay for the proper closure of the site. The trustee, a financial institution, controls the fund and invests the money in low-risk assets. All income earned by such investments is retained in the fund and reinvested along with fund principal.

Upon closure of the facility, monies in the fund are available to reimburse authorized expenditures for closure when itemized bills are submitted to the Regional Administrator.

Funds remaining after all closure requirements have been fulfilled are returned to the facility's owner or operator.

During interim status, payments into the trust are made annually over 20 years or over the remaining life of the facility, whichever is less. (This is referred to as the "pay-in" period.) After a permit has been issued, the pay-in period is reduced to the life of the initial permit. A Federal permit may be written for a maximum of 10 years.

The trustee will furnish annual valuations at least 30 days before the anniversary date of establishment of the fund to both the grantor (i.e., facility owner or operator) and the Regional Administrator of the closure trust fund at each facility. Valuations are based on market values no more than 60 days prior to the anniversary date of establishment of the fund.

During the pay-in period, the minimum annual payment is equal to the unfunded liability of the facility (the estimated closure divided by the number of years remaining in the pay-in period):

$$\text{Minimum annual payment} = \frac{CE - CV}{Y}$$

where CE = the current cost estimate for closure.
CV = is the current value of the trust fund.
Y = is the number of years remaining in the pay-in period.

The first payment should be made at the time the trust fund is established and subsequent payments, no later than 30 days after each yearly anniversary date of the trust fund. After the pay-in period is completed, the funding level of the trust fund must be revised within 60 days of any change in the cost estimates.

After the pay-in period is completed, the owner or operator must maintain the value of the trust fund at a level equal to or greater than the CE value. Release of amounts from the fund requires written instructions from the Regional Administrator to the trustee.

The trustee must be a bank or other financial institution that has the authority to act as a trustee and whose trust operations are regulated and examined by a Federal or state agency. The trustee may accept written directions from the grantor concerning investment guidelines and objectives; however, the trustee must abide by the "prudent man" doctrine for investments and may not include securities or other obligations of the grantor in the trust fund portfolio. All expenses of the trust, including taxes, brokerage commissions, legal services, and trustee compensation--to the extent not paid directly by the grantor--are paid by the fund. The trustee must notify the Regional Administrator within 10 days following the expiration of the 30-day period of the failure of the grantor to make the required annual payments during the pay-in period.

Prospective grantors should review all tax aspects of trust fund operations with their accountants or tax advisors. Under present statutes, payments into a trust fund are not considered expenses (and are therefore not deductible) on Federal income tax returns. (The EPA is awaiting an IRS ruling on this.) Payments by the trust fund for closure or post-closure care expenses, however, are deductible in the year of closure or post-closure care when such expenses are incurred. Income earned by the trust fund is taxable, even though it is not distributed to the grantor in the year earned. The grantor's Federal income tax liability will be credited (reduced), however, to the extent of any Federal income taxes paid by the trust fund on a fiduciary return.

The trust fund is terminated and remaining monies are returned to the grantor when one of two conditions have been met:

1) The requirements for closure have been satisfied.
2) An alternative financial assurance instrument has been provided to substitute for all or part of the trust fund.

Only the Regional Administrator can release the trustee from this obligations under the trust agreement.

The wording of the trust agreement must be identical to the wording specified in 40 CFR Section 264.151(a)(1), and the trust agreement must be accompanied by a formal certification of acknowledgment.

I-5b Surety Bond (40 CFR Sections 264.143(b), 264.143(c), 264.151(b), and 164.151(c))

A surety bond is a contract whereby a surety company guarantees to pay the amount of closure or post-closure care costs should the owner or operator fail to meet his obligation. A standby trust fund must be established in conjunction with the surety bond. Payments from a surety company would be made directly into the standby trust. The owner or operator need not make any payments into the standby trust fund.

After obtaining the surety bond from, at a minimum, a federally acceptable surety company (per Treasury Circular 570), the owner or operator delivers the bond and standby trust fund documents to the Regional Administrator. The penal sum of the bond is adjusted yearly to correspond to adjustments in the closure cost estimate. Adjustments to the penal sum must be made within 60 days after any changes in the cost estimate. The bond remains effective until cancelled with the consent of the Regional Administrator.

The cost to the owner or operator of providing financial assurance by means of a surety bond includes the cost of the bond itself plus the incremental opportunity cost of any capital required to be set aside as collateral. The direct cost of the surety bond is generally between 1.0 and 2.0 percent of the face value of the bond per year and is deductible for tax purposes. The EPA expects the use of surety bonds for financial assurance to be limited (based on discussions with the Surety Association of America). Wording for the surety bond is specified in 40 CFR Section 264.151(c).

I-5c Closure Letter of Credit [40 CFR Sections 264.143d) and 264.151(d)]

A letter of credit is an instrument issued by a financial institution on behalf of the owner or operator of the hazardous waste facility that gives EPA the right to draw from the issuing institution to cover the costs of closure in the event the firm fails to meet its obligation. In a sense, the financial institution substitutes its credit for that of the facility.

The owner or operator establishes a standby trust fund in conjunction with a letter of credit in an amount equal to or greater than the current closure cost estimate. Both instruments are delivered to the Regional Administrator and are updated annually, as appropriate. Adjustments to the value of the letter of credit must be made within 60 days of any changes in the closure cost estimate.

The institution issuing the letter of credit must be a bank or other financial institution that has authority to issue letters of credit and whose operations for this purpose are regulated and examined by a Federal or state agency. The letter of credit is irrevocable; it is issued for a period of at least one year, with automatic extensions for at least one additional year unless 90-day notification is given to the Regional Administrator.

Upon determination, under Section 3008 of RCRA, that the owner or operator has failed to meet his closure obligations, the Regional Administrator may draw on the letter of credit. Drafts under the letter of credit are deposited into a standby trust fund, from which payments are made for approved closure expenses.

The cost to the owner or operator of providing financial assurance by means of a letter of credit includes the cost of the letter of credit itself plus the incremental opportunity cost of any capital required to be set aside as collateral. The annual direct cost of the letter of credit is generally between 0.25 and 2.0 percent of the value of the letter of credit, depending on the credit-worthiness of the firm. Such costs are deductible for income tax purposes. Collateral required for letters of credit typically averages 20 percent of the value of the letters of credit. Wording for the letter of credit is specified in 40 CFR Section 264.151(d).

I-5d Closure Insurance [40 CFR Section 264.143(e) and 264.151(e)]

A firm may purchase an insurance policy for the amount of the estimated closure cost. The insurance company will pay the cost of closure up to the full amount of the policy whenever closure occurs.

The face value of the policy is at least the amount of current closure cost. Premiums paid during the active life of the site serve to fund the full amount of the policy, although it may not have a cash value. At the end of site life, the insurer will pay out funds, up to the face amount of the policy, to reimburse authorized expenditures for closure. The face amount of the insurance must be adjusted accordingly within 60 days of any change in the cost estimates. The policy cannot be cancelled except for failure to pay the premium, and then only 120 days after providing notification of such failure to both the Regional Administrator and the owner or operator.

The owner or operator submits a certificate of insurance [worded as specified in 40 CFR Section 264.151(e)] signed by the insurer and indicating the face amount of the policy. The insurer must be licensed to transact insurance business or eligible to provide insurance as an excess or surplus line insurer in one or more states. Either the face amount of the insurance must be adjusted to equal or exceed the covered cost of closure, or other forms of financial assurance must be provided to make up the difference.

The key issue regarding the insurance mechanism is the deductibility of premium payments for tax purposes. If the premiums are deductible, the insurance policy would be similar to the trust fund without the adverse tax treatment of fund payments. Until the tax issue is resolved, however, it is doubtful whether any significant interest in this option will develop. Currently, no insurance firms are offering to issue this kind of policy.

I-5e Financial Test and Corporate Guarantee [40 CFR Sections 264.143(f), 264.151(f), and 264.151(h)]

The owner or operator can establish financial assurance for closure of one or more facilities by passing a financial test. The test [wording at 40 CFR Section 264.143(f)(1)] is based on the facility's most recent audited financial statements, and it must be recertified on an annual basis. The test takes into account the current adjusted cost of closure and post-closure care of all facilities that are not covered by an alternative financial mechanism. If a facility passes the financial test, it need not provide any additional assurance that it can meet its closure cost obligations. A parent company that passes the financial test can provide a guarantee of its subsidiary's obligations.

To certify satisfactory financial conditions under the financial test, the owner or operator supplies to the regional administrator: (1) a letter from the facility's chief financial officer [wording in 40 CFR Section 264.151(f)]; (2) an auditor's report confirming the results of the test; (3) the auditor's opinion; (4) a letter from a guarantor corporation, if applicable [wording in 40 CFR Section 264.151(g)]; (5) any other information requested by the Regional Administrator. The auditor must be an independent certified public accountant. If a facility fails to provide certification of satisfactory financial condition at any time prior to termination of its closure obligations, an alternative financial assurance mechanism must be supplied within 30 days.

I-5f Combinations

I-5f(1) Use of Multiple Financial Mechanisms [40 CFR Section 264.143(g)]

A facility's use of multiple financial mechanisms requires a copy of a combination of trust fund agreements, surety bonds guaranteeing payment into a trust fund, letters of credit, insurance, and state guarantees. Neither the financial test nor surety bonds guaranteeing performance of closure can be used to provide partial financial assurance for closure of a single facility. The combined financial assurance provided for a facility must equal or exceed the facility's current (adjusted) closure cost estimate.

I-5f2) Use of Financial Mechanisms for Multiple Facilities [40 CFR Section 264.143(h)]

A single financial mechanism may be used to provide financial assurance for closure of more than one facility. Total funding of the mechanism must equal or exceed the sum required for each facility considered separately. Evidence of financial assurance must be supplied to the Regional Administrator in each region where covered facilities are located; it should include a list showing the EPA identification number, name, address, and amount of funds for closure assured by the mechanism for each facility.

I-6 Post-Closure Cost Estimate [40 CFR Sections 122.15(a)(16) and 264.144]

These regulations only apply to disposal facilities.

I-7 Financial Assurance Mechanism for Post-closure [40 CFR Sections 122.15(a)(16) and 264.145]

These regulations only apply to disposal facilities.

I-8 Liability Requirements [40 CFR Section 122.15(a)(17) and 264.147]

In states that have only Phase I authorization, provide evidence that the liability coverage will be effective at the time of permit issuance. This may be done by stating which mechanism will be used and providing a copy of the proposed mechanism. In states that do not have Phase I authorization of liability coverage, existing facilities must submit evidence by July 17, 1982, for sudden and nonsudden (for surface impoundments, landfills, or land treatment facilities only) accidental occurrences that cause injury to persons or property. Evidence may be provided by submitting a certificate of insurance, by passing a financial test (self-insurance), or any combination of the two. Coverage amounts apply to all facilities owned or operated by the insured. Only states and the Federal government are not required to provide liability coverage. In states that have both Phase I and II authorization, facilities must comply with state laws and regulations that are or will be in effect at the time of application submitted. Coverage must be maintained until certification of closure of all facilities.

I-8a Sudden Insurance [40 CFR Sections 264.147(a), 264.151(i) and 264.151(j)]

All facility owners and operators must have coverage for sudden occurrences (accidents that are not continuous or repetitive in nature) in the amount of at least $1 million per occurrence, with an annual aggregate of $2 million, exclusive of legal defense costs.

If insurance is used to cover all or part of this liability, you must submit proof with your permit application to each the EPA Regional Administrator in each Region in which covered facilities are located. Such proof may be in the form of a signed duplicate original of either (1) the policy's Hazardous Waste Facility Liability Endorsement [wording in 40 CFR Section 264.151(g)], or (2) the Certificate of Liability Insurance [wording in 40 CFR 264.151(j)].

Alternatively, a facility may use a financial test or any combination of insurance and a financial test as evidence of liability.

Existing facilities must submit the required documents by July 15, 1982, in states that do not have Phase I authorization, and according to state law and regulations, in states that have Phase I or Phase II authorization.

I-8b Nonsudden Insurance [40 CFR Sections 264.147(b), 264.151(i), and 264.151(j)]

These requirements apply only to surface impoundments, landfills, or land treatment disposal facilities that are not addressed in this manual.

I-8c Financial Test [40 CFR Sections 264.174(f), 264.151(J)]

Owners or operators may provide assurance for all or part of their financial liability requirements by passing a financial test. The test [wording in 40 CFR Section 264.147(f)] is based on the facility's most recent audited financial statements and must be recertified on an annual basis. To certify satisfactory financial condition under the financial test, you must supply the Regional Administrator with (1) a letter from your Chief Financial Officer [wording at 40 CFR Section 264.151(g)]; (2) an auditor's report confirming the results of the test; (3) the auditor's opinions; (4) any other information requested by the Regional Administrator.

The auditor must be an independent certified public accountant. If a facility fails to provide certification of satisfactory financial conditions for any portion of the required liability coverage, such coverage must be provided within 30 days through an insurance policy.

I-8d Variance Procedures [40 CFR Section 264.147(c)]

An owner or operator may obtain approval from the Regional Administrator for a reduction in the required liability amounts under this section. Such approval depends on an evaluation of the degree and duration of risks associated with the ownership or operation of each facility or group of facilities and on other technical and engineering information as determined necessary by the Regional Administrator.

I-8e Adjustment Procedures [40 CFR Section 264.147(d)]

The Regional Administrator may elect to increase the amounts of liability coverage required for any facility or group of facilities, and may elect to impose nonsudden liability coverage requirements on treatment of storage facilities. Such a determination is based on an evaluation of the degree and duration of risks and what is deemed necessary to protect human health and the environment. Any adjustment of the level of required coverage for a facility that has a permit is treated as a permit modification under 40 CFR Sections 122.15(a)(7)(iii) and 124.5.

I-9 State Mechanisms

I-9a Use of State-Required Mechanisms [40 CFR Section 122.15 (2)(18), 264.149]

If a state has hazardous waste regulations equivalent to or greater than Federal liability requirements or financial assurance for closure, submit a copy of the state-required financial mechanisms and a letter requesting that the state mechanism be acceptable. Include the facility's EPA identification number, name, and address and the amounts of coverage. If the state coverage is less than Federal requirements, the owner or operator must provide proof of additional financial assurance mechanisms to equal Federal requirements.

To obtain approval for state-assumed coverage, the owner or operator must submit a letter written by the state to the Regional Administrator describing the nature of the state's assumption of responsibility, together with a request that such assumption be considered acceptable. The letter must include the facility's EPA identification number, name, and address and the amount of funds for closure or liability coverage that are guaranteed by the state.

I-9b State Assumption of Responsibility [40 CFR Section 264.150]

A state may assume either the owner's or operator's legal responsibility for closure and liability or the financial responsibility to cover those requirements in accordance with the Federal standards. If state guarantees for financial responsibility are less than the amounts estimated for closure, the owner or operator of the facility must supply additional financial assurance mechanisms to cover the shortfall.

J. OTHER FEDERAL LAWS [40 CFR Sections 122.25(a)20 and 122.12]

The EPA must ensure that RCRA permits are consistent with the requirements of applicable Federal laws, such as the Wild and Scenic Rivers Act, National Historic Preservation Act of 1966, Endangered Species Act, Coastal Zone Management Act, and the Fish and Wildlife Coordination Act. Therefore, it is necessary to consider the potential impact of the facility on these special environmental areas, and information related to the facility's compliance with other Federal laws in the RCRA permit application.

K. CERTIFICATION [40 CFR Sections 122.6(a) and (d)]

Applications must be accompanied by a certification letter reading as follows:

> "I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

The required signatures are as follows: (1) for a corporation, a principal executive officer (at least at the level of vice-president); (2) for a partnership or sole proprietorship, a general partner or the proprietor, respectively; (3) for a municipal, state, Federal, or other public agency, either a principal executive officer or ranking elected official.

PART 2

MODEL RCRA PERMIT APPLICATION

PART 2

MODEL RCRA PERMIT APPLICATION

Part 2 presents a model of a Part A application, a Part B application, and certification for a fictitious hazardous waste management facility.

Appendix A contains general information and hazardous characteristics of waste; Appendix B contains inspection log sheets; and Appendix C contains a Trust Agreement.

SECTION A

PART A APPLICATION

The Part A application includes the completed forms that follow, a facility map (Figure 2), and a facility photograph (Figure 3).

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* This is a suggested notation to facilitate revisions to the Part B Permit Application.

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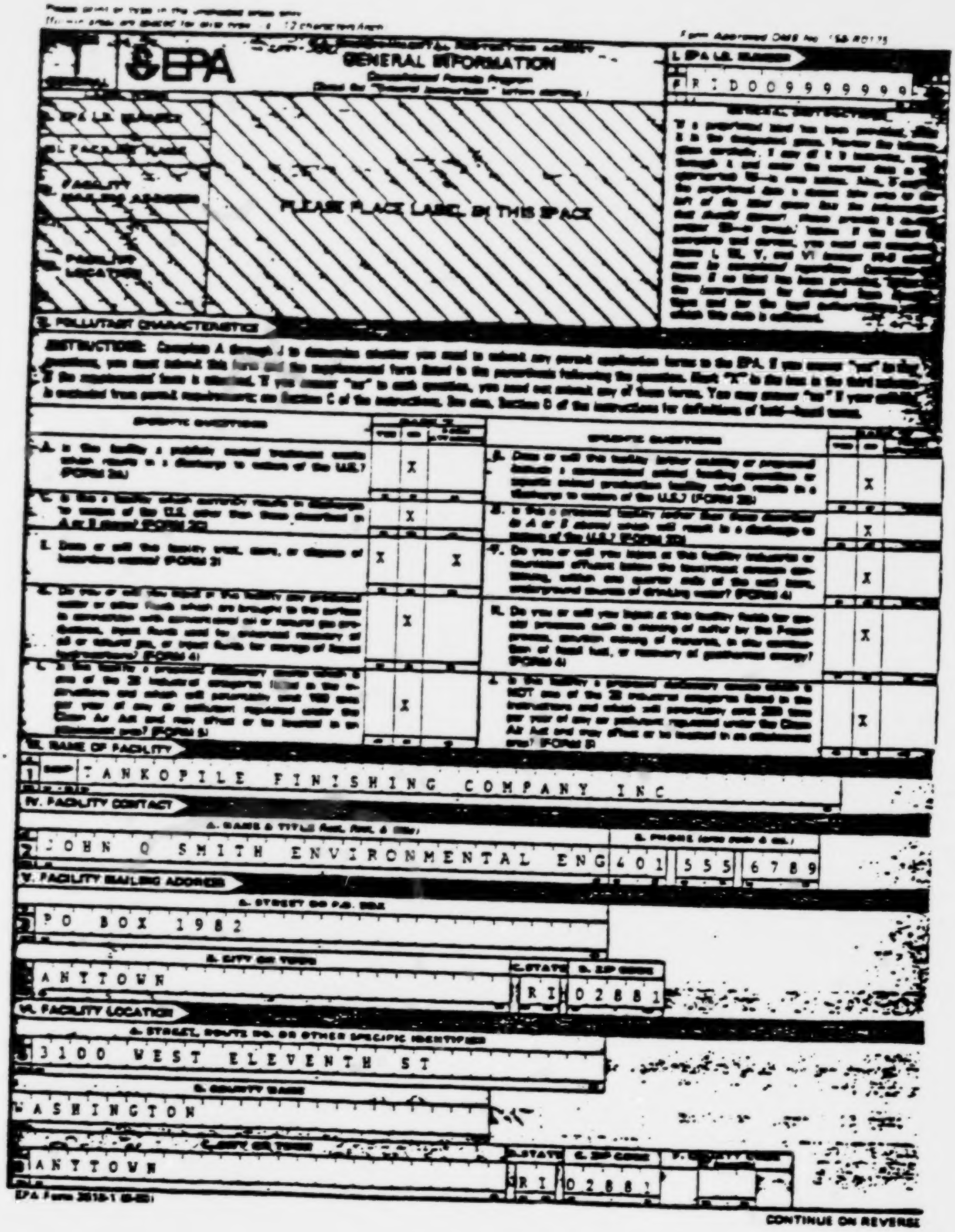

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Form Approved OMB No. 158-R0175

EPA

GENERAL INFORMATION

[illegible]

I. EPA I.D. NUMBER

F R I D 0 0 9 9 9 9 9 9 9

PLEASE PLACE LABEL IN THIS SPACE

GENERAL INSTRUCTIONS [illegible]

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: [illegible]

SPECIFIC QUESTIONS	YES	NO	FORM ATTACHED	SPECIFIC QUESTIONS	YES	NO	FORM ATTACHED
A. [illegible]		X		B. [illegible]		X	
C. [illegible]		X		D. [illegible]		X	
E. [illegible]	X		X	F. [illegible]		X	
G. [illegible]		X		H. [illegible]		X	
I. [illegible]		X		J. [illegible]		X	

III. NAME OF FACILITY

1 SKIP TANKOPILE FINISHING COMPANY INC

IV. FACILITY CONTACT

A. NAME & TITLE (last, first, & title)

2 JOHN Q SMITH ENVIRONMENTAL ENG

B. PHONE (area code & no.)

401 555 6789

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX

3 PO BOX 1982

B. CITY OR TOWN

ANYTOWN

C. STATE

RI

D. ZIP CODE

02881

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER

5 3100 WEST ELEVENTH ST

B. COUNTY NAME

WASHINGTON

C. CITY OR TOWN

6 ANYTOWN

D. STATE

RI

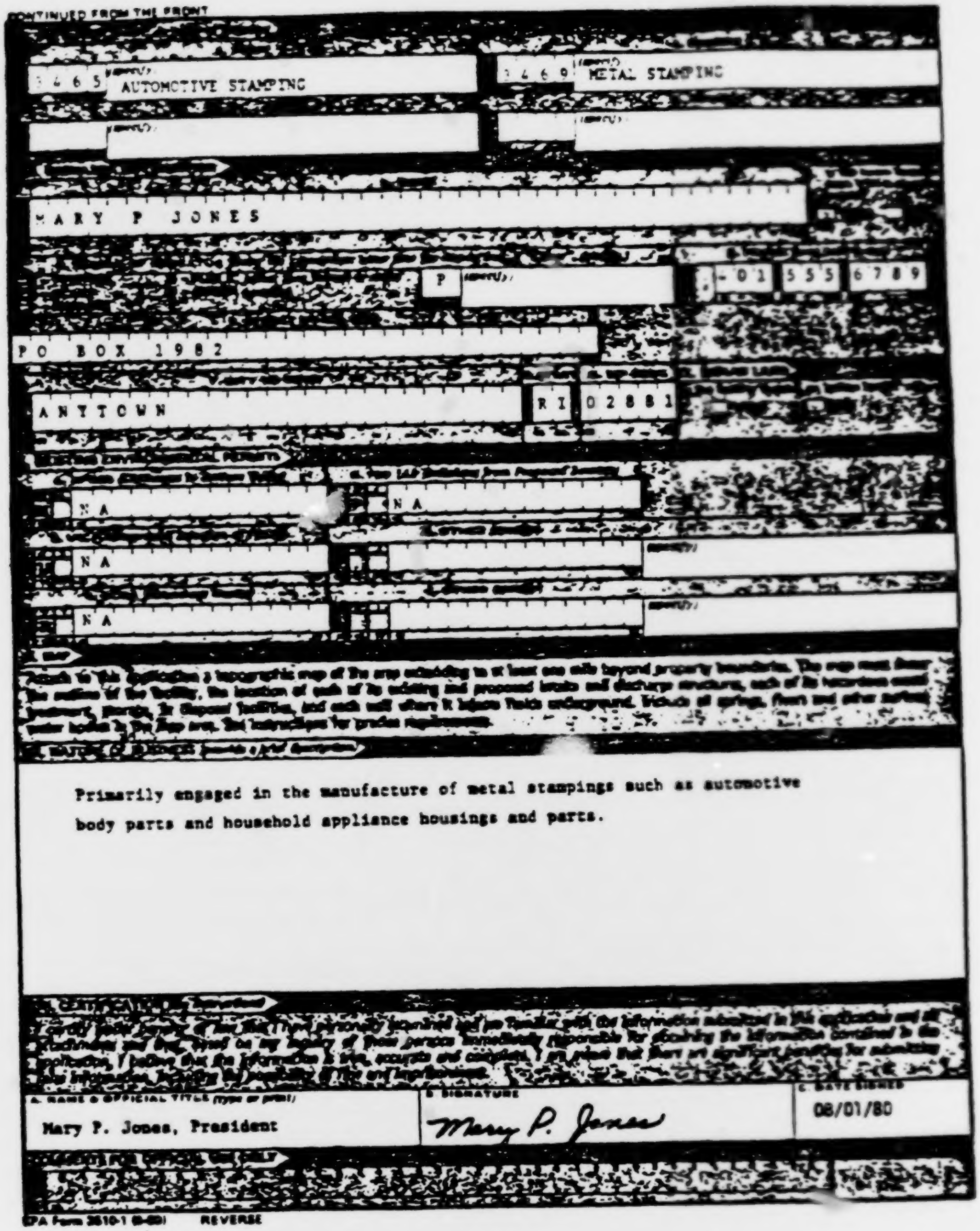
E. ZIP CODE

02881

F. COUNTY CODE

EPA Form 3510-1 (6-80)

CONTINUE ON REVERSE



CONTINUED FROM THE FRONT

3465 (specify) AUTOMOTIVE STAMPING

3469 (specify) METAL STAMPING

(specify)

(specify)

MARY P JONES

P (specify)

[illegible]01 555 6789

PO BOX 1982

ANYTOWN RI 02881

☐ NA

☐ NA

☐ NA

☐ NA

(specify)

(specify)

MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in the map area. See instructions for precise requirements.

NATURE OF BUSINESS (provide a brief description)

Primarily engaged in the manufacture of metal stampings such as automotive body parts and household appliance housings and parts.

CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE (type or print) Mary P. Jones, President	B. SIGNATURE Mary P. Jones	C. DATE SIGNED 08/01/80

EPA Form 3510-1 (6-80) REVERSE

[illegible]
A

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Form Approved OMB No. 158-S80004

3 RCRA

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY
HAZARDOUS WASTE PERMIT APPLICATION
Consolidated Permits Program
(This information is required under Section 3005 of RCRA.)

I. EPA I.D. NUMBER
F R I D 0 0 9 9 9 9 9 9 9

FOR OFFICIAL USE ONLY

APPLICATION APPROVED	DATE RECEIVED (yr., mo., & day)	COMMENTS

II. FIRST OR REVISED APPLICATION

Place an "X" in the appropriate box in A or B below (mark one box only) to indicate whether this is the first application you are submitting for your facility or a revised application. If this is your first application and you already know your facility's EPA I.D. Number, or if this is a revised application, enter your facility's EPA I.D. Number in Item I above.

A. FIRST APPLICATION (place an "X" below and provide the appropriate date)

☒ 1. EXISTING FACILITY (See instructions for definition of "existing" facility. Complete item below.)

☐ 2. NEW FACILITY (Complete item below.)

8 | 7 3 | D E | 0 9 FOR EXISTING FACILITIES, PROVIDE THE DATE (yr., mo., & day) OPERATION BEGAN OR THE DATE CONSTRUCTION COMMENCED (use the boxes to the left)

FOR NEW FACILITIES, PROVIDE THE DATE (yr., mo., & day) OPERATION BEGAN OR IS EXPECTED TO BEGIN

B. REVISED APPLICATION (place an "X" below and complete Item I above)

☐ 1. FACILITY HAS INTERIM STATUS

☐ 2. FACILITY HAS A RCRA PERMIT

III. PROCESSES – CODES AND DESIGN CAPACITIES

A. PROCESS CODE – Enter the code from the list of process codes below that best describes each process to be used at the facility. Ten lines are provided for entering codes. If more lines are needed, enter the code(s) in the space provided. If a process will be used that is not included in the list of codes below, then describe the process (including its design capacity) in the space provided on the form (Item III-C).

B. PROCESS DESIGN CAPACITY – For each code entered in column A enter the capacity of the process.
1. AMOUNT – Enter the amount.
2. UNIT OF MEASURE – For each amount entered in column B(1), enter the code from the list of unit measure codes below that describes the unit of measure used. Only the units of measure that are listed below should be used.

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Storage:		
CONTAINER (barrel, drum, etc.)	S01	GALLONS OR LITERS
TANK	S02	GALLONS OR LITERS
WASTE PILE	S03	CUBIC YARDS OR CUBIC METERS
SURFACE IMPOUNDMENT	S04	GALLONS OR LITERS
Disposal:		
INJECTION WELL	D79	GALLONS OR LITERS
LANDFILL	D80	ACRE-FEET (the volume that would cover one acre to a depth of one foot) OR HECTARE-METER
LAND APPLICATION	D81	ACRES OR HECTARES
OCEAN DISPOSAL	D82	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	D83	GALLONS OR LITERS

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Treatment:		
TANK	T01	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	T02	GALLONS PER DAY OR LITERS PER DAY
INCINERATOR	T03	TONS PER HOUR OR METRIC TONS PER HOUR; GALLONS PER HOUR OR LITERS PER HOUR
OTHER (Use for physical, chemical, thermal or biological treatment processes not occurring in tanks, surface impoundments or incinerators. Describe the processes in the space provided; Item III-C.)	T04	GALLONS PER DAY OR LITERS PER DAY

UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE	UNIT OF MEASURE CODE
GALLONS	G	LITERS PER DAY	V	ACRE-FEET	A
LITERS	L	TONS PER HOUR	D	HECTARE-METER	F
CUBIC YARDS	Y	METRIC TONS PER HOUR	W	ACRES	B
CUBIC METERS	C	GALLONS PER HOUR	E	HECTARES	Q
GALLONS PER DAY	U	LITERS PER HOUR	H		

EXAMPLE FOR COMPLETING ITEM III (shown in line numbers X-1 and X-2 below): A facility has two storage tanks, one tank can hold 200 gallons and the other can hold 400 gallons. The facility also has an incinerator that can burn up to 20 gallons per hour.

C DUP

LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT (specify)	B. PROCESS DESIGN CAPACITY 2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY	LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT	B. PROCESS DESIGN CAPACITY 2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY
X-1	S 0 2	600	G		5				
X-2	T 0 3	20	E		6				
1	S 0 1	5500	G		7				
2	S 0 2	15,000	G		8				
3	S 0 3	50	Y		9				
4					10				

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PAGE 1 OF 5

CONTINUE ON REVERSE

Continued from the front.

III. PROCESSES (continued)

C. SPACE FOR ADDITIONAL PROCESS CODES OR FOR DESCRIBING OTHER PROCESSES (code "T04"). FOR EACH PROCESS ENTERED HERE INCLUDE DESIGN CAPACITY.

IV. DESCRIPTION OF HAZARDOUS WASTES

A. EPA HAZARDOUS WASTE NUMBER — Enter the four-digit number from 40 CFR, Subpart D for each listed hazardous waste you will handle. If you handle hazardous wastes which are not listed in 40 CFR, Subpart D, enter the four-digit number(s) from 40 CFR, Subpart C that describes the characteristics and/or the toxic contaminants of those hazardous wastes.

B. ESTIMATED ANNUAL QUANTITY — For each listed waste entered in column A estimate the quantity of that waste that will be handled on an annual basis. For each characteristic or toxic contaminant entered in column A estimate the total annual quantity of all the non-listed waste(s) that will be handled which possess that characteristic or contaminant.

C. UNIT OF MEASURE — For each quantity entered in column B enter the unit of measure code. Units of measure which must be used and the appropriate codes are:

ENGLISH UNIT OF MEASURE	CODE	METRIC UNIT OF MEASURE	CODE
POUNDS	P	KILOGRAMS	K
TONS	T	METRIC TONS	M

If facility records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure taking into account the appropriate density or specific gravity of the waste.

D. PROCESSES

1. PROCESS CODES:

For listed hazardous waste: For each listed hazardous waste entered in column A select the code(s) from the list of process codes contained in Item III to indicate how the waste will be stored, treated, and/or disposed of at the facility.

For non-listed hazardous wastes: For each characteristic or toxic contaminant entered in column A, select the code(s) from the list of process codes contained in Item III to indicate all the processes that will be used to store, treat, and/or dispose of all the non-listed hazardous wastes that possess that characteristic or toxic contaminant.

Note: Four spaces are provided for entering process codes. If more are needed: (1) Enter the first three as described above; (2) Enter "000" in the extreme right box of Item IV-D(1); and (3) Enter in the space provided on page 4, the line number and the additional code(s).

2. PROCESS DESCRIPTION: If a code is not listed for a process that will be used, describe the process in the space provided on the form.

NOTE: HAZARDOUS WASTES DESCRIBED BY MORE THAN ONE EPA HAZARDOUS WASTE NUMBER — Hazardous wastes that can be described by more than one EPA Hazardous Waste Number shall be described on the form as follows:

1. Select one of the EPA Hazardous Waste Numbers and enter it in column A. On the same line complete columns B, C, and D by estimating the total annual quantity of the waste and describing all the processes to be used to treat, store, and/or dispose of the waste.
2. In column A of the next line enter the other EPA Hazardous Waste Number that can be used to describe the waste. In column D(2) on that line enter "included with above" and make no other entries on that line.
3. Repeat step 2 for each other EPA Hazardous Waste Number that can be used to describe the hazardous waste.

EXAMPLE FOR COMPLETING ITEM IV *(shown in line numbers X-1, X-2, X-3, and X-4 below)* — A facility will treat and dispose of an estimated 900 pounds per year of chrome shavings from leather tanning and finishing operation. In addition, the facility will treat and dispose of three non-listed wastes. Two wastes are corrosive only and there will be an estimated 200 pounds per year of each waste. The other waste is corrosive and ignitable and there will be an estimated 100 pounds per year of that waste. Treatment will be in an incinerator and disposal will be in a landfill.

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
X-1	K054	900	P	T03 D80	
X-2	D002	400	P	T03 D80	
X-3	D001	100	P	T03 D80	
X-4	D002				*included with above*

CONTINUE ON PAGE 3

Continued from page 2

NOTE: Photocopy this page before completing if you have more than 26 wastes to list. Form Approved OMB No. 158-S80004

EPA I.D. NUMBER (enter from page 1)	W R : D 0 0 9 9 9 9 9 9 9	FOR OFFICIAL USE ONLY	
		W DUP	DUP

IV. DESCRIPTION OF HAZARDOUS WASTES (continued)

LINE NO.	A. EPA HAZARD WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
1	D 0 0 7	15	T	S 0 1	
2	D 0 0 8				Included with above
3	D 0 0 1	5	T	S 0 1	
4	D 0 0 1	5	T	S 0 1	
5	D 0 0 2	20	T	S 0 1	
6	D 0 0 7				Included with above
7	D 0 0 8				Included with above
8	K 0 6 2	150	T	S 0 2	
9	F 0 0 1	30	T	S 0 2	
10	D 0 0 7	100	T	S 0 3	
11	D 0 0 8				Included with above
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					

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PAGE 3 ___ OF 5

(enter "A", "B", "C", etc. behind the "3" to identify photocopied pages)

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Continued from the front

IV. DESCRIPTION OF HAZARDOUS WASTES (continued)

E. USE THIS SPACE TO LIST ADDITIONAL PROCESS CODES FROM ITEM D(1) ON PAGE 3

EPA I.D. NO. (enter from page 1)
F R I D 0 0 9 9 9 9 9 9 9

V. FACILITY DRAWING

All existing facilities must include in the space provided on page 5 a scale drawing of the facility (see instructions for more detail).

VI. PHOTOGRAPHS

All existing facilities must include photographs (aerial or ground–level) that clearly delineate all existing structures; existing storage, treatment and disposal areas; and sites of future storage, treatment or disposal areas (see instructions for more detail).

VII. FACILITY GEOGRAPHIC LOCATION

LATITUDE (degrees, minutes, & seconds)	LONGITUDE (degrees, minutes, & seconds)
41 46 00 N	071 33 00 W

VIII. FACILITY OWNER

☒ A. If the facility owner is also the facility operator as listed in Section VIII on Form 1, "General Information", place an "X" in the box to the left and skip to Section IX below.

☐ B. If the facility owner is not the facility operator as listed in Section VIII on Form 1, complete the following items:

1. NAME OF FACILITY'S LEGAL OWNER	2. PHONE NO. (area code & no.)
E	

3. STREET OR P.O. BOX	4. CITY OR TOWN	5. ST.	6. ZIP CODE
F	G		

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME (print or type)	B. SIGNATURE	C. DATE SIGNED
Mary P. Jones	Mary P. Jones	08/01/80

X. OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME (print or type)	B. SIGNATURE	C. DATE SIGNED
Mary P. Jones	Mary P. Jones	06/01/80

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PAGE 4 OF 5

CONTINUE ON PAGE 5

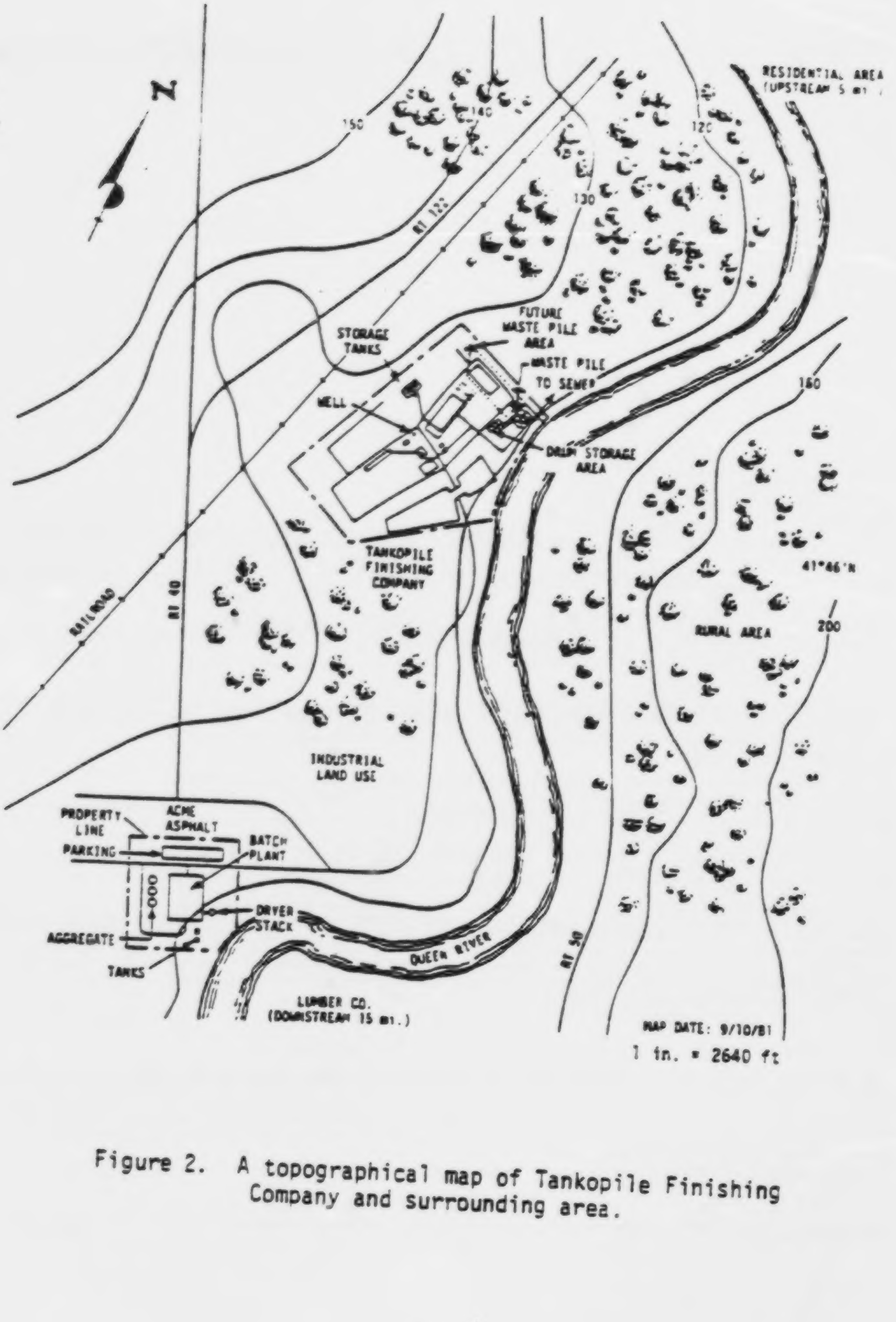

N
150
140
130
120
RT 120
RESIDENTIAL AREA (UPSTREAM 5 mi.)
FUTURE WASTE PILE AREA
STORAGE TANKS
WASTE PILE
TO SEWER
WELL
DRUM STORAGE AREA
160
TANKOPILE FINISHING COMPANY
41°46'N
RAILROAD
RT 40
RURAL AREA
200
INDUSTRIAL LAND USE
PROPERTY LINE
ACME ASPHALT
PARKING
BATCH PLANT
DRYER STACK
AGGREGATE
TANKS
QUEEN RIVER
RT 50
LUMBER CO. (DOWNSTREAM 15 mi.)
MAP DATE: 9/10/81
1 in. = 2640 ft

Figure 2. A topographical map of Tankopile Finishing Company and surrounding area.

(An actual photograph would include existing structures and future hazardous waste storage areas.)

Figure 3. Facility photograph, June 2, 1980.

SECTION B

FACILITY DESCRIPTION

This section provides a general description of the hazardous waste management facility as required by 40 CFR §122.25(a). This description is intended to acquaint the permit application reviewer/permit writer with an overview of the facility. More complete details can be found in other parts of this permit application.

B-1 General Description [40 CFR 122.25(a)(1)]

Tankopile Finishing Company, Inc., is located 3 miles east of the city limits of Anytown, Rhode Island. The street address is:

Tankopile Finishing Company, Inc.
3100 West 11th Street
Washington County
Anytown, Rhode Island 02881

The mailing address is:

Tankopile Finishing Company, Inc.
P.O. Box 1982
Anytown, Rhode Island 02881

This facility is primarily a manufacturer of metal automotive parts (i.e., body parts, hubs, and trim) and household appliance housings and parts. Hazardous wastes are generated by metal fabrication, cleaning, finishing and coating operations. Fabrication and machining of metal parts generates metal grindings. Cleaning of metal parts in hydrochloric acid generates pickle liquor sludge and spent pickle liquor. Vinyl acetate and vinyl chloride sludges are generated by the metal coating operations. The waste trichloroethane results from vapor degreasing of metal parts. The metal hydroxide sludge is generated as a byproduct from recycling wastes from chromium and lead plating operations.

The contact and party responsible for the hazardous waste management activities at Tankopile is:

John Q. Smith
Environmental Engineer
(401) 555-6789

B-2 Topographic Map [40 CFR 122.25(a)(19)]

Figure 4 is a topographic map showing the facility boundaries, buildings, waste storage areas, and other details. Figures 5 and 6 are topographic maps showing 5-ft contour intervals of elevation and the 100-year floodplain area, respectively. These maps also show surface waters. The scale on these maps is 1 in. equals 880 ft. whereas the regulations request a scale of 1 in. equal to not more than 200 ft. This was discussed with the permit application reviewer at EPA and this submission was considered acceptable (see letter to J. Q. Smith dated 12/1/81 from C. Siegel submitted separately).

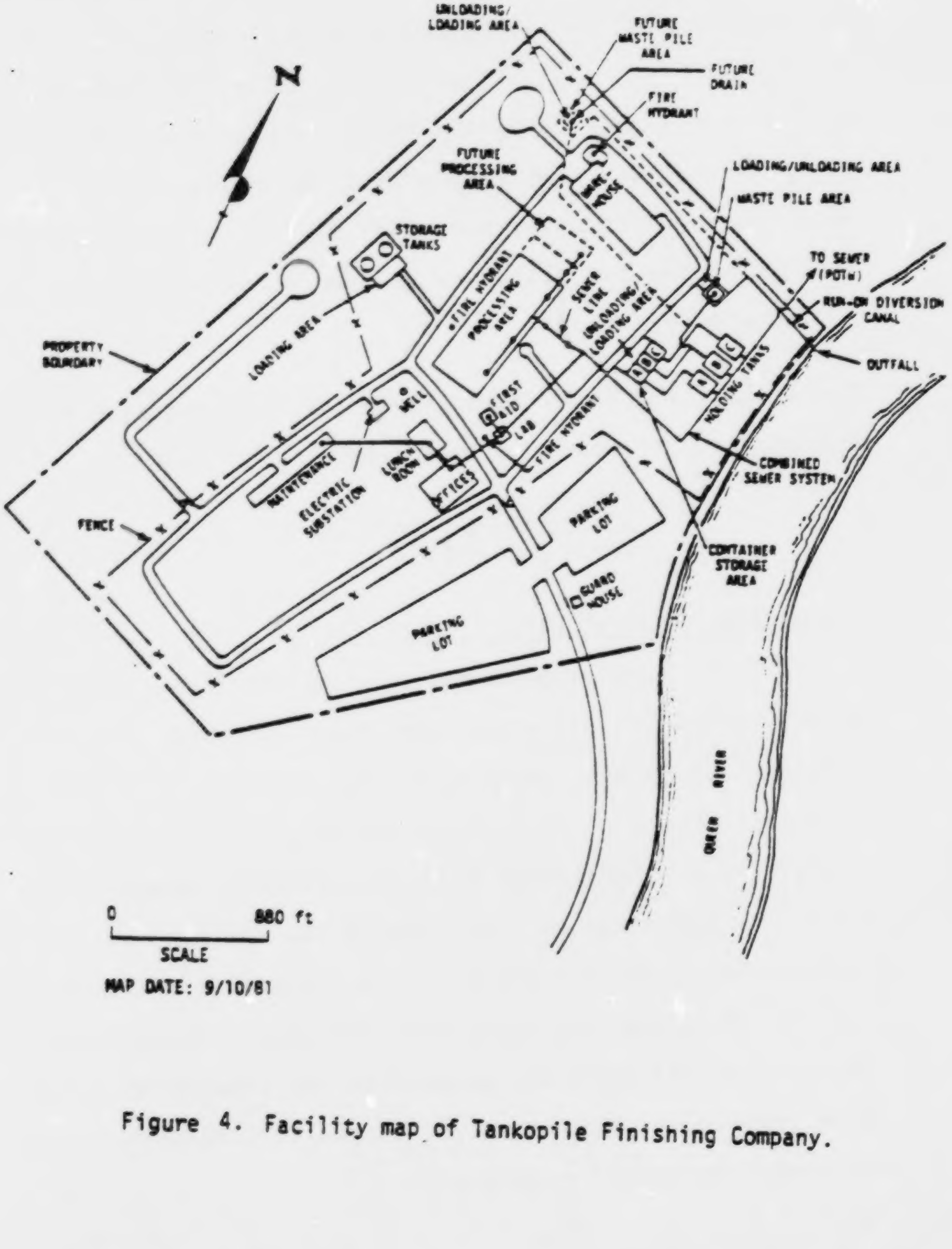

UNLOADING/LOADING AREA
FUTURE WASTE PILE AREA
FUTURE DRAIN
FIRE HYDRANT
N
FUTURE PROCESSING AREA
WAREHOUSE
LOADING/UNLOADING AREA
WASTE PILE AREA
STORAGE TANKS
TO SEWER (POTW)
RUN-ON DIVERSION CANAL
OUTFALL
PROPERTY BOUNDARY
LOADING AREA
FIRE HYDRANT
PROCESSING AREA
SEWER LINE
UNLOADING/LOADING AREA
HOLDING TANKS
WELL
FIRST AID
LAB
FIRE HYDRANT
MAINTENANCE
ELECTRIC SUBSTATION
LUNCH ROOM
OFFICES
COMBINED SEWER SYSTEM
FENCE
PARKING LOT
CONTAINER STORAGE AREA
GUARD HOUSE
PARKING LOT
QUEEN RIVER
0
880 ft
SCALE
MAP DATE: 9/10/81

Figure 4. Facility map of Tankopile Finishing Company.

Reproduced from best available copy.

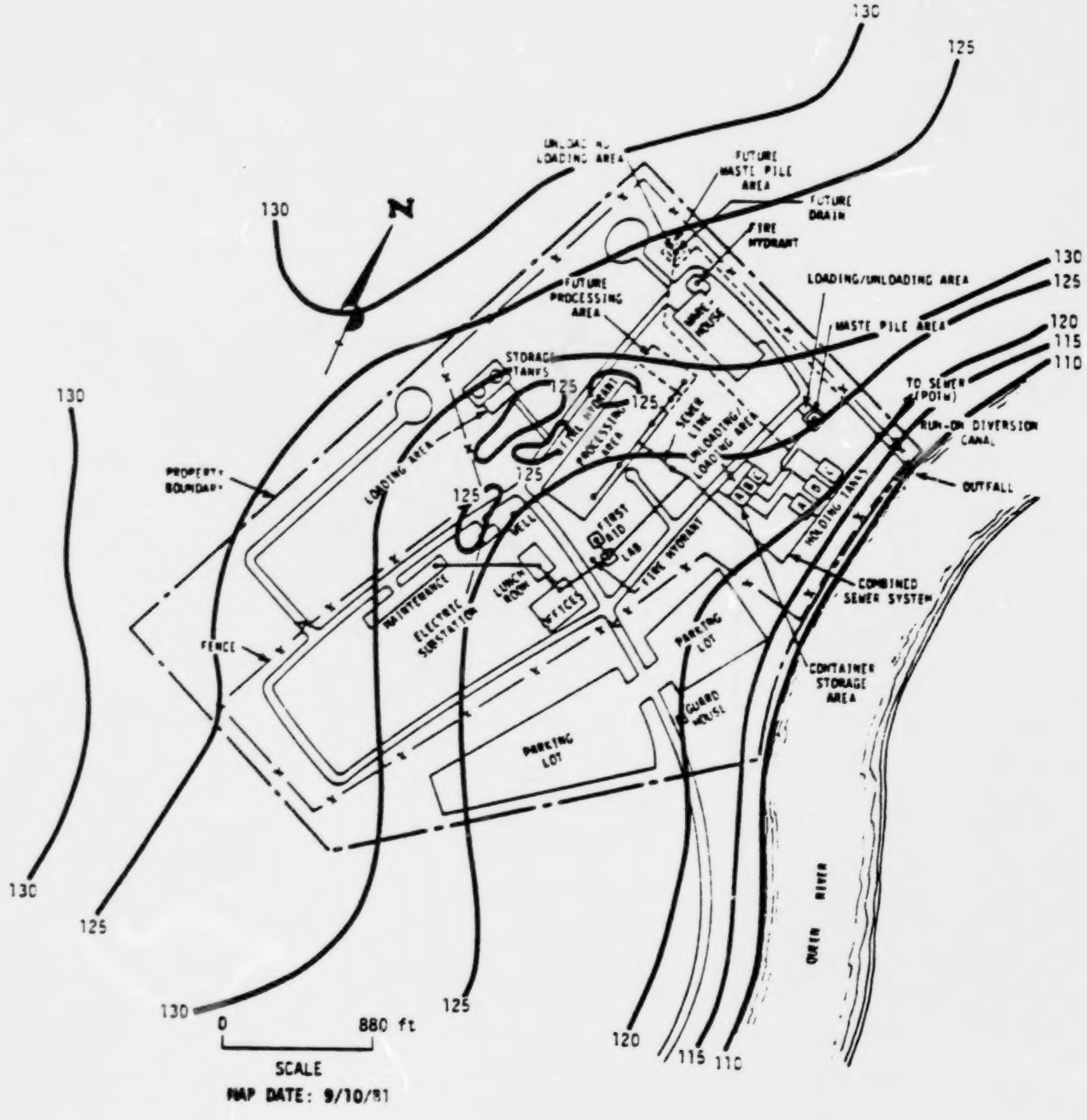

130
125
130
N
UNLOADING AND LOADING AREA
FUTURE WASTE PILE AREA
FUTURE DRAIN
FIRE HYDRANT
LOADING/UNLOADING AREA
130
125
120
115
110
FUTURE PROCESSING AREA
WASTE PILE AREA
STORAGE TANKS
125
125
TO SEWER (POTW)
RUN-ON DIVERSION CANAL
OUTFALL
130
PROPERTY BOUNDARY
LOADING AREA
125
125
FIRE HYDRANT
PROCESSING AREA
SEWER LINE
UNLOADING/LOADING AREA
HOLDING TANKS
WELL
FIRST AID
LAB
FIRE HYDRANT
COMBINED SEWER SYSTEM
MAINTENANCE
LUNCH ROOM
OFFICES
ELECTRIC SUBSTATION
FENCE
PARKING LOT
CONTAINER STORAGE AREA
GUARD HOUSE
PARKING LOT
130
125
RIVER
130
125
120
115
110
0
880 ft
SCALE
MAP DATE: 9/10/81

Figure 5. Facility map with 5-foot contour intervals of elevation (feet MSL).

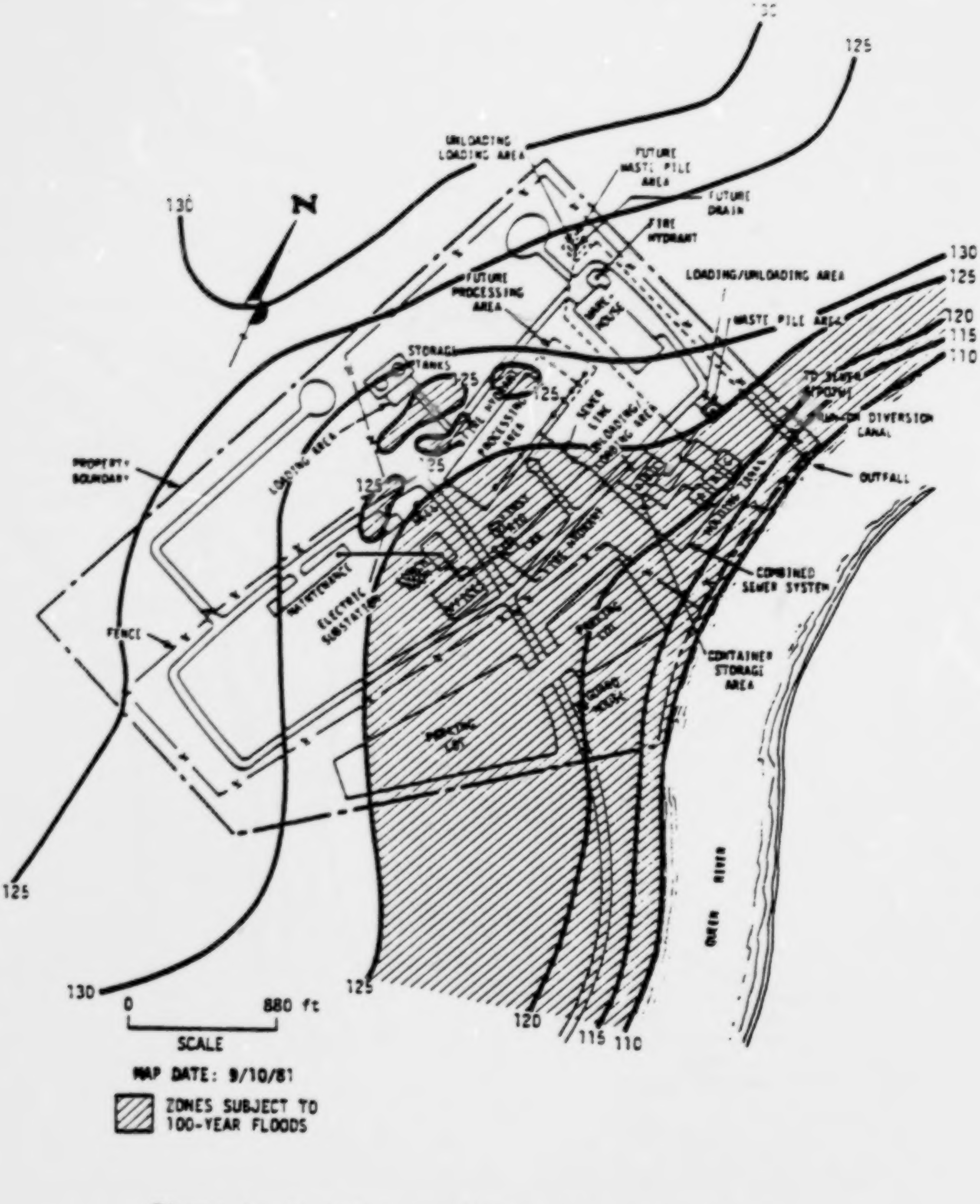

130
125
UNLOADING LOADING AREA
FUTURE WASTE PILE AREA
FUTURE DRAIN
FIRE HYDRANT
N
130
FUTURE PROCESSING AREA
LOADING/UNLOADING AREA
WASTE PILE AREA
130
125
120
115
110
STORAGE TANKS
125
125
125
PROCESSING AREA
SEWER LINE
UNLOADING/LOADING AREA
TO SEWER
DIVERSION CANAL
OUTFALL
LOADING AREA
125
125
PROPERTY BOUNDARY
MAINTENANCE
ELECTRIC SUBSTATION
COMBINED SEWER SYSTEM
FENCE
CONTAINER STORAGE AREA
PARKING LOT
RIVER
125
130
125
120
115
110
0
880 ft
SCALE
MAP DATE: 9/10/81
▨ ZONES SUBJECT TO 100-YEAR FLOODS

Figure 6. Facility map showing 100-year floodplain.

Land Uses: Figure 7 shows surrounding land-use areas. Other industry lies south of the facility; the rest of the surrounding area is undeveloped. Zoning maps of the area may be obtained from the City of Anytown Planning Commission.

Hazardous Waste Management Facility Boundary: The hazardous waste management facilities consist of the drum storage area (100 55-gallon drums), two 7500-gallon storage tanks, and one 50-yd^3 waste pile (Figure 4). The figure also shows the location of the future waste pile area which is outside the 100-year floodplain. The existing waste pile area is within the 100-year floodplain (Figure 6).

Wind Rose: Figure 8 shows an annual wind rose of meteorological data collected from 1965 through 1974 at the nearest weather station, approximately 5 miles west of the Tankopile facility in Anytown, Rhode Island.

Access Control: The facility is surrounded by a fence, and a guard house is situated at the only entrance to the plant. Employees must show identification to obtain access; visitors must sign in and out and wear a visitor's badge. Access control is discussed in further detail in Section F-1a.

Injection and Withdrawal Wells: The site has no injection wells. One withdrawal well is located north of the electric substation (see Figure 4) and is used to supply cooling water for vapor degreasers at the facility. No other wells are located on-site or off-site within 1000 feet of the facility.

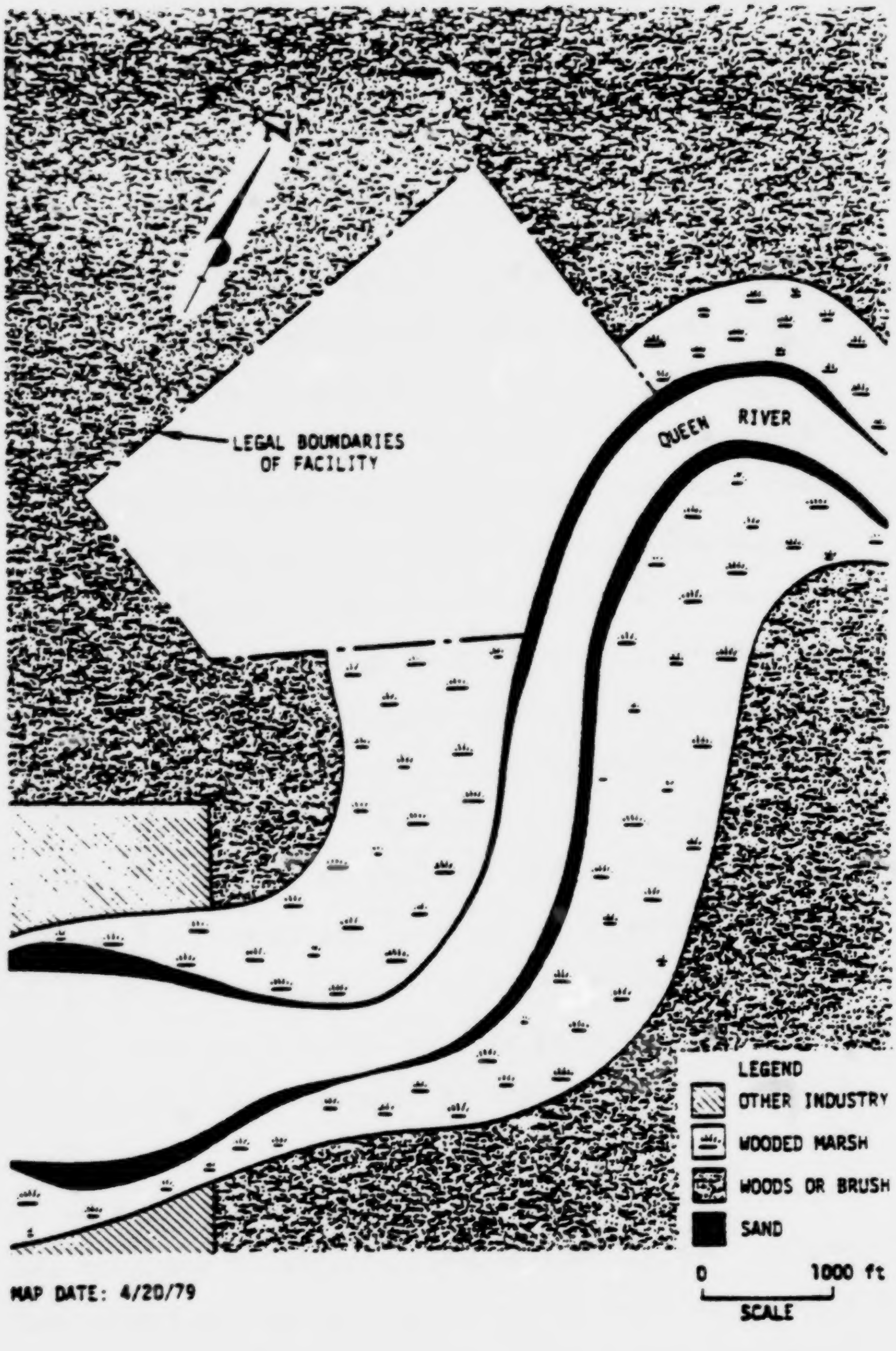

N
LEGAL BOUNDARIES OF FACILITY
QUEEN RIVER
LEGEND
OTHER INDUSTRY
WOODED MARSH
WOODS OR BRUSH
SAND
0
1000 ft
SCALE
MAP DATE: 4/20/79

Figure 7. Surrounding land use.

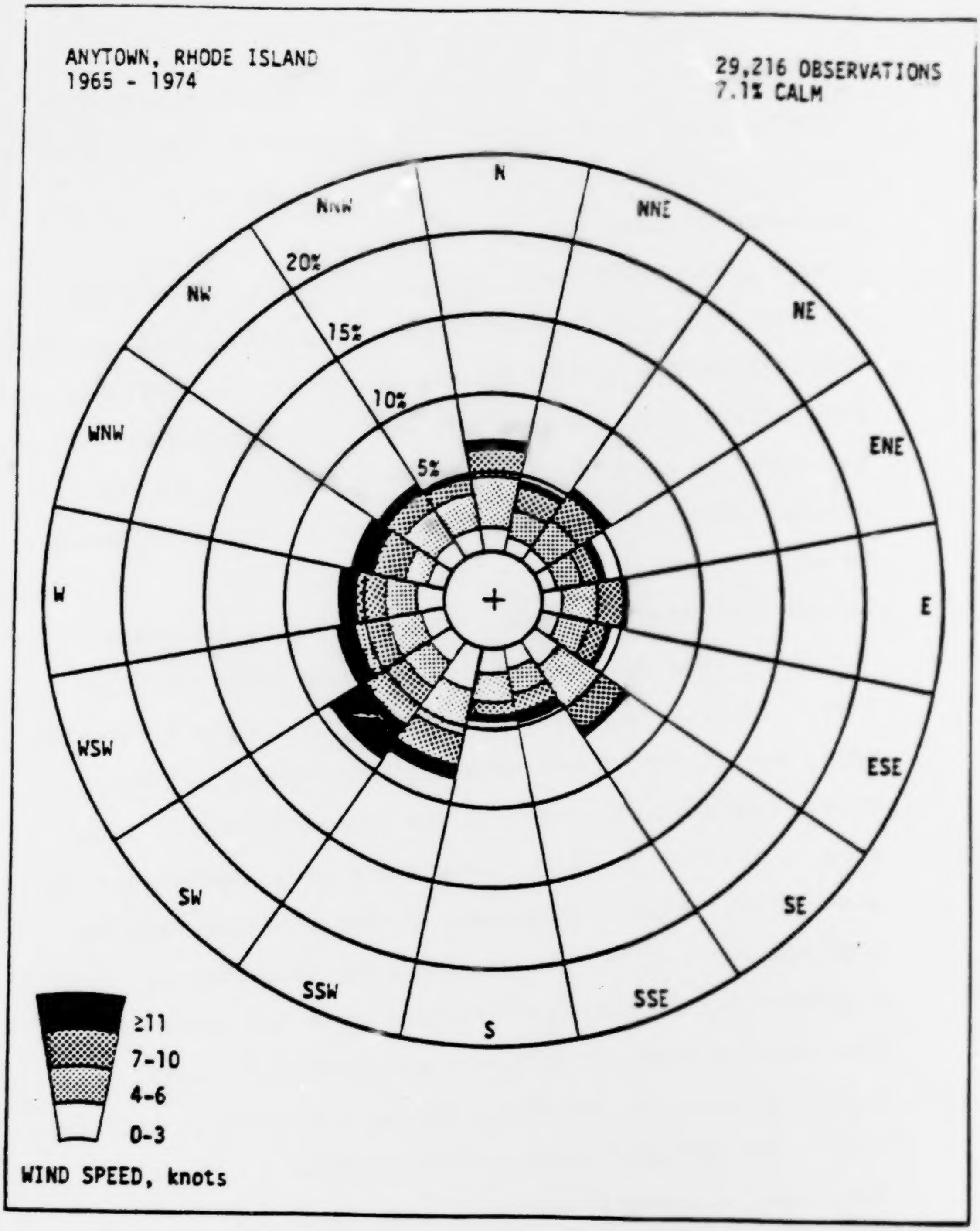


Figure 8. Wind rose.

Buildings; Treatment, Storage, and Disposal Areas; Other Structures: Figure 3 shows the building and structures on the property as well as the waste storage areas.

Recreation Areas: Not applicable.

Runoff Control Systems: A combined sewer system with collection drains located throughout the facility collects runoff from the processing and warehouse areas (Figure 4). Runoff from the container and waste pile storage areas is collected in holding tanks prior to discharge to the sewer system. Section F-4b discusses runoff control in greater detail.

Access and Internal Roads: Figure 4 shows the roads within the plant area and the one road leading into the plant.

Storm, Sanitary and Process Sewers: Tankopile's combined sewer system, which collects sanitary sewage and storm water, has drains located in the office building, lunch room, first aid building, processing area, and warehouse area. The system also extends to the container storage area and waste pile storage area receiving runoff. Runoff collected in the container storage area and waste pile storage area does not mix with sanitary waste until it passes through the holding tanks as discussed in section F-4b. The combined sewer system is shown in Figure 4. There are no process sewers at this facility.

Loading and Unloading Areas: Concrete loading/unloading areas are provided on the east side of the tank storage area and at the warehouse. A loading/unloading area is provided on the west side of the container storage area and a loading/unloading area will be located on the south side of the future waste pile.

Fire Control Facilities: The three fire hydrants provided are located near the lab, the processing area, and the warehouse.

Surface Waters: The only surface water within 1000 feet of the facility is the Queen River shown in Figures 4 through 6.

Flood Control/Drainage Barriers: General drainage on the property is toward the river. A fence surrounds the containers to keep them within the storage area during a minor flood. Alternatively, when a 100-year flood is evident, the containers will be removed to a disposal facility. Current plans call for the waste pile to be moved outside the 100-year floodplain. The tanks are already located outside the floodplain.

B-3 Location Information [40 CFR 122.25(a)(11) and 264.18]

B-3a Seismic Standard

Because this is an existing rather than a new facility, the seismic standard does not apply.

B-3b Floodplain Standard

The Tankopile Finishing Company, Inc., facility is located immediately west of the Queen River and 1.3 miles east of the Chipuxet River. The 100-year floodplain elevation at the facility is 125 feet mean sea level (MSL).

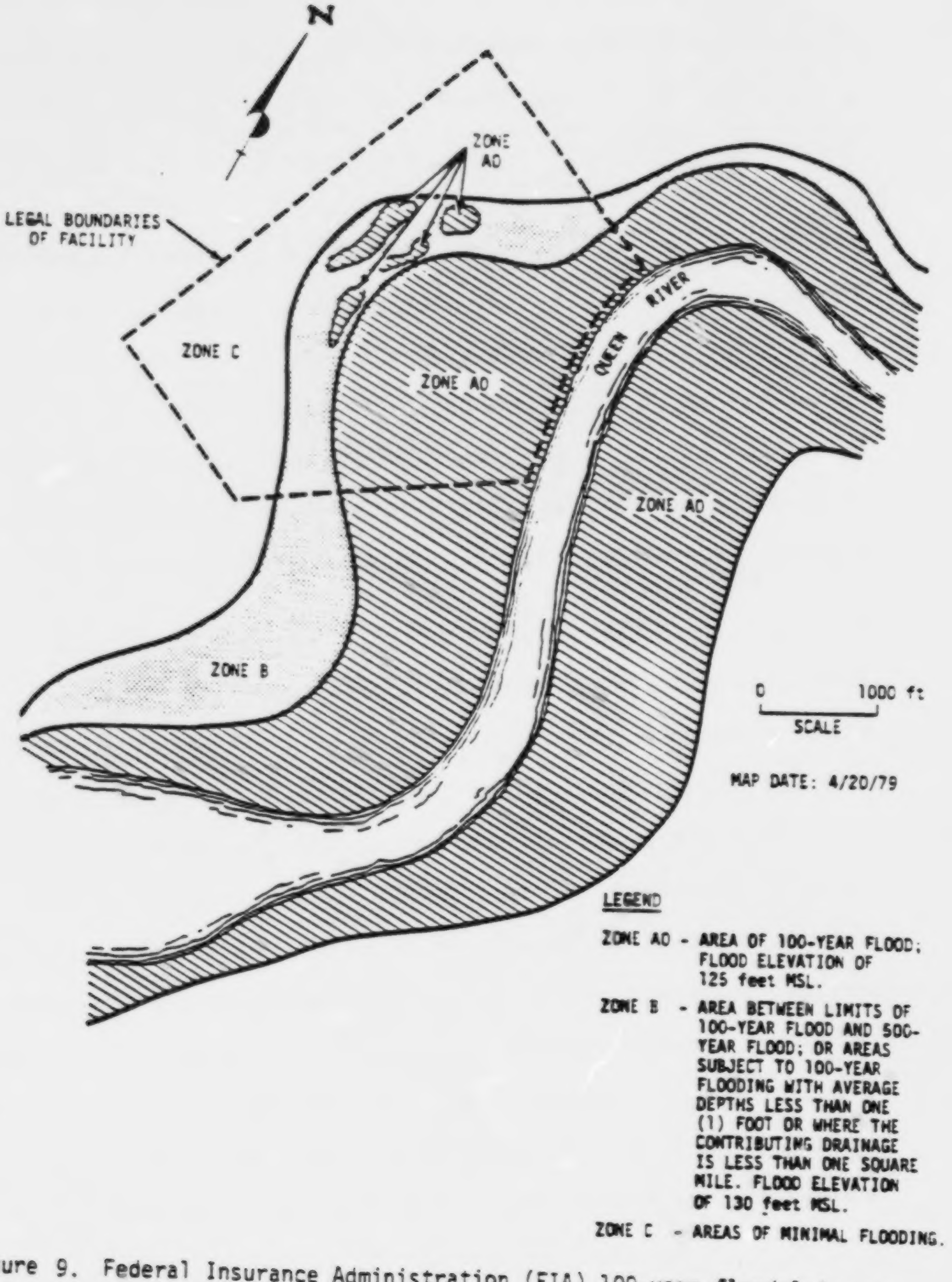
Figure 9 shows a portion of the Federal Insurance Administration (FIA) flood map for the city of Anytown. The zones labeled "AO" on the map indicate areas of 100-year shallow flooding with depths between 1 and 3 feet. (This refers to depth of flooding in a given area rather than rise of the river by one to three feet.) The Zone B portions of the facility property indicate areas between the limits of the 100-year flood and the 500-year flood or areas subject to 100-year flooding with average depths of less than one foot. The remainder (the most northern and western sections) of the property, designated as Zone C, is an area that is not subject to flooding. More than half of the facility property is located within the 100-year floodplain and is subject to floods of one to three feet in depth.

B-3b(1) Demonstration of Compliance

B-3b(1)(a) Flood Proofing and Flood Protection Measures

The slow-flowing Queen River may subject the property to occasional shallow (one to three foot depths) floods, but no wave action can reasonably be expected.

Waste containers (55-gallon drums) are stored in a fenced-in area located in Zone AO. Although the container storage


N
ZONE AO
LEGAL BOUNDARIES OF FACILITY
ZONE C
ZONE AO
QUEEN RIVER
ZONE AO
ZONE B
0
1000 ft
SCALE
MAP DATE: 4/20/79

LEGEND

ZONE AO - AREA OF 100-YEAR FLOOD; FLOOD ELEVATION OF 125 feet MSL.

ZONE B - AREA BETWEEN LIMITS OF 100-YEAR FLOOD AND 500-YEAR FLOOD; OR AREAS SUBJECT TO 100-YEAR FLOODING WITH AVERAGE DEPTHS LESS THAN ONE (1) FOOT OR WHERE THE CONTRIBUTING DRAINAGE IS LESS THAN ONE SQUARE MILE. FLOOD ELEVATION OF 130 feet MSL.

ZONE C - AREAS OF MINIMAL FLOODING.

Figure 9. Federal Insurance Administration (FIA) 100-year floodplain map.

area is subject to floods, the closed drums would be contained by the fence should a flood occur. In the event of a 100-year flood, the drums will be removed to a disposal facility.

B-3b(1)(b) Flood Plan

The container storage area located in the east corner of the property, in zone AO, is in the 100-year floodplain. In the event of a 100-year flood, the drums will be moved by Hazardous Spills Cleaned (OSC), Inc. (EPA I.D. No. RI0000000000) 1200 East Twelfth Street, Anytown, Rhode Island, to Ace Storage, Inc., 4700 West Eleventh Street, Anytown, Rhode Island (EPA I.D. No. RI009899999).

Tankopile has contracted with OSC, Inc., a firm that specializes in hazardous waste transport and hazardous spill cleanup activities. Tankopile has entered into a contractual agreement with OSR that guarantees that OSR will make the necessary personnel and equipment available to move our waste to Ace Storage within 4 hours notice. The contractual agreement is available at the facility for review. OSR will move the palletized drums by fork-lift truck onto a flat-bed truck, which will transport the drums 5 miles to Ace Storage. OSR has entered into a contractual agreement with Ace Storage that states that they will accept the Tankopile waste within 8 hours' notice.

It is estimated that it would take 8 hours to move 100 drums (4 per pallet), which is well within the warning time before the occurrence of a 100-year flood.

Some small likelihood of a potential accident is possible when moving the drums from the storage area and loading them onto the flat-bed trucks. Therefore, Tankopile's emergency coordinator will be responsible for ensuring that the contractor personnel follow all necessary safety procedures.

B-3b(2) Plan for Future Compliance

The waste pile currently located in the east corner of the property, in Zone AO, would be subject to washout should a 100-year flood occur. Plans are being completed for constructing a storage area for the waste pile in the northernmost corner of the property along the eastern boundary. This is a Zone C area, not subject to flooding (100-yr). The planned waste pile storage area will be constructed according to the production schedule provided in Table 2 and will meet the same design specifications as the existing waste pile storage area. Moving the waste pile from its current location will prevent material washout from the pile due to flooding. (See Section D-3a for design of waste pile.) The old waste pile will be closed in accordance with the procedures specified in the closure plan.

TABLE 2. WASTE PILE CONSTRUCTION SCHEDULE

Item	Date of completion
Begin construction	March 1, 1982
Ground water table control system	March 26, 1982
Leachate collection system	April 16, 1982
Foundation	April 23, 1982
Liner	April 30, 1982
Leachate and runoff collection system	May 14, 1982
Base	May 21, 1982
Run-on diversion ditch	June 7, 1982
Begin receiving wastes	June 15, 1982

This facility will be in compliance with 40 CFR Section 264.18(b) by June 1983 when the waste pile is moved to a nonflooding area.

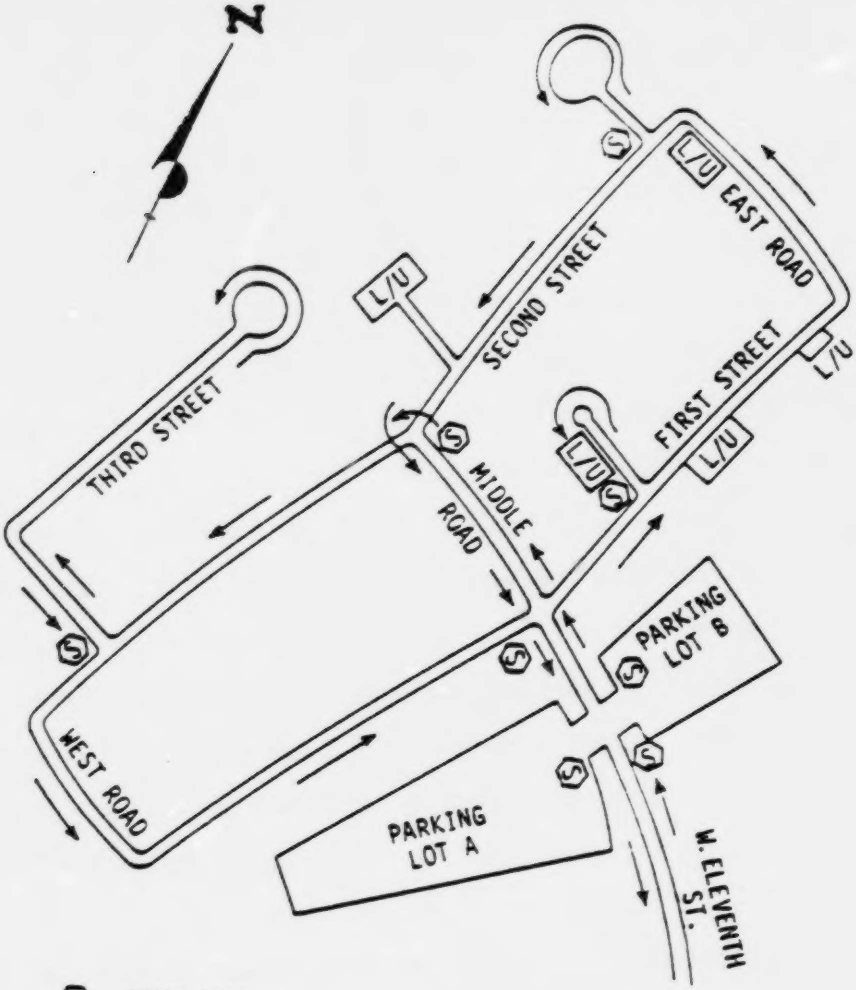
B-4 Traffic Patterns [40 CFR 122.25(a)(10)]

Access to Tankopile Finishing Company is from Interstate 95 to State Highway 102 east and right on River Road. After a distance of approximately 5 miles on River Road, a left-hand turn is made at West Eleventh Street, and the plant entrance is on the left about 1/2 mile from the intersection.

Figure 10 shows the onsite traffic pattern. The main road, parking lots, and dead-end roads are two-way; the two main loops within the property are one-way. Most cars are confined to the parking lot and entrance road. Within the plant, traffic vehicles consist mostly of front-end loaders and trucks. About five semitrailers enter the plant each day. Four front-end loaders are used throughout the plant on a constant basis; and two additional front-end loaders are used as needed.

Traffic Control: Traffic is controlled by one-way direction and stop signs. These are also indicated in Figure 10.

Access Road Surfacing: All roads are constructed of 5 in. of bituminous concrete pavement (blacktop), composed of 3½ in. of bituminous concrete base material and 1½ in. of bituminous concrete surface material; this overlays 9 in. of compacted aggregate base.


N
THIRD STREET
SECOND STREET
L/U
S
EAST ROAD
FIRST STREET
L/U
L/U
L/U
S
MIDDLE ROAD
S
S
PARKING LOT B
S
WEST ROAD
S
S
PARKING LOT A
W. ELEVENTH ST.

Ⓢ STOP SIGN

L/U LOADING/UNLOADING AREA

Figure 10. Traffic flow (not to scale).

Load-Bearing Capacity: All roads are capable of bearing loads up to 50,000 pounds per axle. The bulk tanker truck used to remove inventory from the tank storage area has a curb weight of 28,000 lbs. Assuming removal of 7,500 gal from either of the storage tanks, the tanker will weigh approximately 91,000 lbs. The flatbed truck used to remove drums from the facility has a curb weight of 30,000 lbs. Assuming removal of 100 drums at 500 lbs/drum, the loaded flatbed truck will weigh about 80,000 lbs. Therefore, the facility roads can bear the weight of the trucks.

Traffic Control Signals: Not applicable.

SECTION C

WASTE CHARACTERISTICS

This section describes the chemical and physical nature of the hazardous wastes stored at the Tankopile facility and the Waste Analysis Plan for sampling, testing, and evaluating the wastes to assure that sufficient information is available for their safe handling. The information submitted is in accordance with the requirements of 40 CFR §122.25(a)(2) and (3).

C-1 Chemical and Physical Analyses [40 CFR 122.25(a)(2)]

List of Hazardous Wastes Stored at Facility: Hazardous wastes are stored at this facility in 55-gallon drum containers, 7500-gallon tanks, and a waste pile. Current inventory consists of

100 containers (55-gallon drums)
Two 7500-gallon tanks
One 50-yd^3 waste pile

The containers (55-gallon drums) can be broadly classified into Group A, B, and C containers, grouped separately due to incompatibility of the wastes. The contents of each group are listed below:

Group A	Yellow drums	Pickle liquor sludge (D002, D007, and D008)
Group B	Blue drums	Metal grindings (D007 and D008)

Group C	White drums	Vinyl acetate sludge (D001) Vinyl chloride sludge (D001)

The pickle liquor sludge is corrosive and it is toxic because of its extractable lead and hexavalent chromium content. The vinyl acetate and vinyl chloride sludges are ignitable; both have flash points below 60°F. The metal grindings are toxic; they contain large amounts of extractable lead and hexavalent chromium.

Spent pickle liquor [hydrochloric acid (HCl)] and spent 1,1,1-trichloroethane solvent (also referred to as methyl chloroform) that have become contaminated and diluted through use in metal cleaning and finishing operations are stored separately in tanks. Spent pickle liquor is a listed hazardous waste, assigned hazardous waste number K062 (40 CFR 261.32) because of its corrosivity and EP toxicity. It is corrosive because it has a pH of less than 2; it is toxic because of its extractable hexavalent chromium and lead content. The 1,1,1-trichloroethane is also a listed hazardous waste, assigned number F001 (40 CFR 261.31) because of its toxicity.

A 50-yd^3 (maximum) waste pile is used to store metal hydroxide sludges which are toxic due to their extractable lead and hexavalent chromium content. The EPA hazardous waste numbers assigned to these sludges are D007 and D008.

Waste Analyses: Table 3 lists the hazardous wastes stored

TABLE 3

WASTES, ASSOCIATED HAZARDS, AND BASIS FOR HAZARD DESIGNATION

Chemical	Hazard	Basis for hazard designation
Tanks		
Pickle liquor (hydrochloric acid)	Corrosive, Toxic	Listed waste K062 has pH of 1 EP toxic, lead and hexavalent chromium
1,1,1-trichloroethane	Toxic	Listed waste F001
Drums		
Vinyl acetate sludge	Ignitible	Flash point of pure vinyl acetate is 18°F. Tested flash point for waste is 25°F.
Vinyl chloride sludge	Ignitible	Flash point of pure vinyl chloride is -108°F. Tested flash point for waste is 6°F.
Pickle liquor sludge	Corrosive, Toxic	Has pH of 1; EP toxic, lead and hexavalent chromium
Metal grindings	Toxic	EP toxic, lead and hexavalent chromium
Waste pile		
Metal hydroxide sludge	Toxic	EP toxic, lead and hexavalent chromium

at the Tankopile facility, their associated hazard classification, and the basis for the hazard classification. In most cases the classification is based on known characteristics of the wastes, such as ignitability, reactivity, corrosivity, or EP toxicity analyses. For listed wastes, the classification is based on the listing. Figures 11 through 17 show the waste analysis results.

Waste Handling: All wastes (except those in the waste pile) are labeled; the label describes the contents of each tank or container and its associated hazard (corrosivity, toxicity, or ignitability). This practice informs workers handling these wastes of the associated hazards so that appropriate precautions can be taken. Details regarding the tanks, containers, storage areas, and personnel training are presented in other sections of this application. General information and hazardous characteristics of the waste types are included in Appendix A.

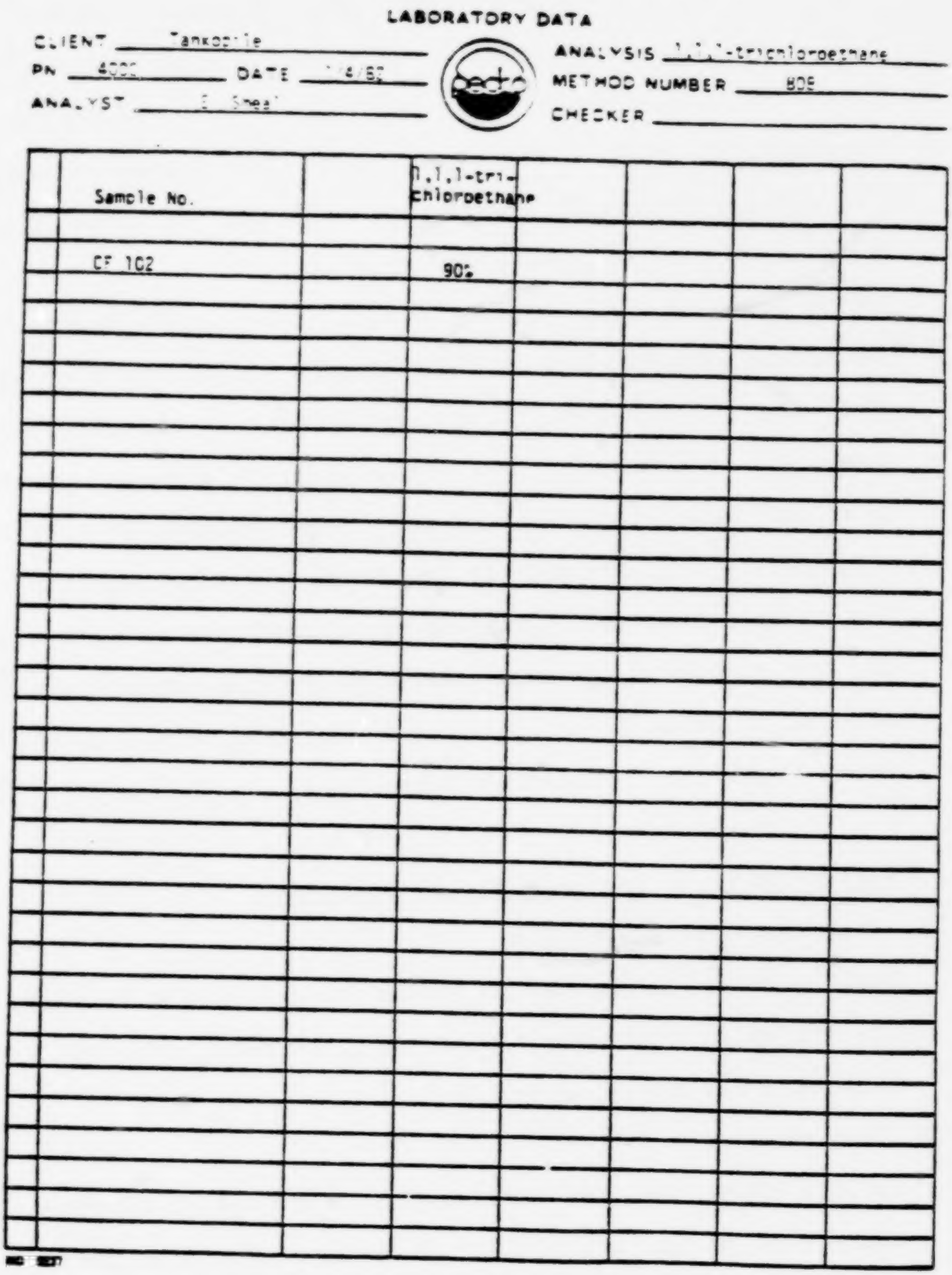
C-2 Waste Analysis Plan [40 CFR 122.25(a)(3)]

C-2a Parameters and Rationale

Table 4 shows the hazardous wastes stored at the facility, the analytical parameters that apply to each, and the rationale for their selection.

C-2b Test Methods

Table 5 shows the test methods that are used to measure the analytical parameters. All test methods are from Test



LABORATORY DATA

CLIENT Tankopile

PN 4000 DATE 1/4/87

ANALYST E. Shea'

ANALYSIS 1,1,1-trichloroethane

METHOD NUMBER 809

CHECKER

	Sample No.		1,1,1-trichloroethane			
	CF 102		90%			

Figure 11. Laboratory analysis results - 1,1,1-trichloroethane.

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RCRA HAZARD ASSESSMENT TEST REPORT

Client: Tankopile Finishing Company PN: 4000
Sample ID: 4001 pickle liquor
PEDCo Lab No.: CF 103 Date Received: 12/[illegible]/81 Date Reported: 1/12/82

§261.21 IGNITABILITY

Flash point ____________ °F (Max. allowed 140°F)

§261.22 CORROSIVITY

pH 1.0 (2< pH <12.5 allowed)
NACE corrosion rate ________ mm/yr (Max. allowed 6.35 mm/yr)

§261.23 REACTIVITY

Acid labile cyanide ____________
Acid labile sulfide ____________

§261.24 EP TOXICITY

Sample type: Solid ________ Semisolid ________ Liquid X
If liquid or semisolid, non-filterable solids = 2 %

NOTE: If sample contains less than 0.5% nonfiltrable solids, the filtrate is the extract.

Analytical Results
Values are concentrations of constituent in extract.

Constituent	Concentration, mg/l	Maximum concentration allowed, mg/l
Arsenic	<0.01	5.0
Barium	<0.01	100.0
Cadmium	0.2	1.0
Chromium, total	86.0	5.0
Chromium, hexavalent	64.0	5.0
Lead	10.0	5.0
Mercury	<0.001	0.2
Selenium	<0.01	1.0
Silver	<0.001	5.0
Endrin		0.02
Lindane		0.4
Methoxychlor		10.0
Toxaphene		0.5
2,4-D		10.0
2,4,5-TP		1.0

PEDCo Environmental, Inc. Submitted by: ____________________

Figure 12. Laboratory analysis results for pickle liquor.

RCRA HAZARD ASSESSMENT TEST REPORT

Client: [illegible] Company PN: 40[illegible]
Sample ID: 46[illegible] vinyl acetate sludge
PEDCo Lab No.: [illegible] 104 Date Received: 12/1/8[illegible] Date Reported: [illegible]

§261.21 IGNITABILITY

Flash point 26 °F (Max. allowed 140°F)

§261.22 CORROSIVITY

pH ____ (2< pH <12.5 allowed)
NACE corrosion rate ____ mm/yr (Max. allowed 6.35 mm/yr)

§261.23 REACTIVITY

Acid labile cyanide ____
Acid labile sulfide ____

§261.24 EP TOXICITY

Sample type: Solid ____ Semisolid ____ Liquid ____
If liquid or semisolid, non-filterable solids = ____ %

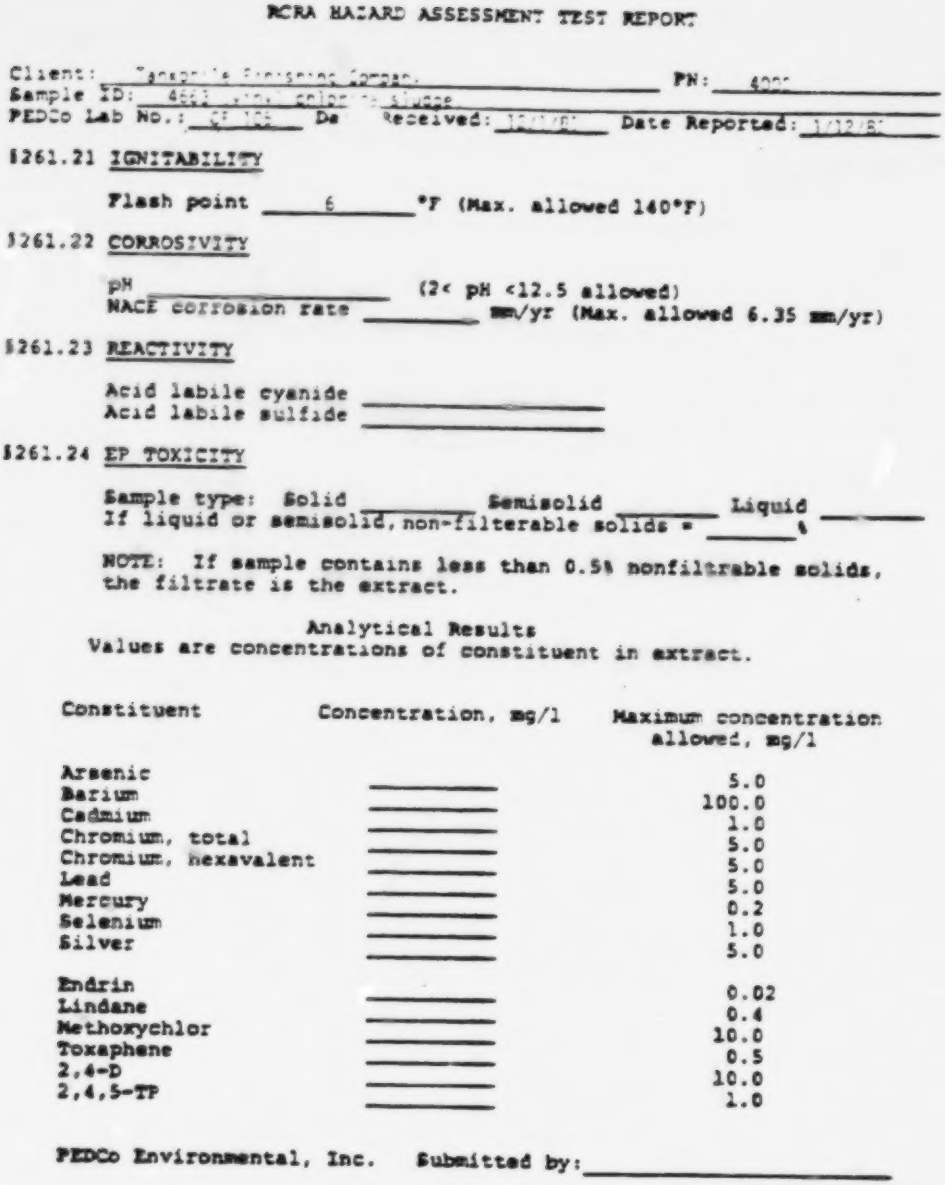
NOTE: If sample contains less than 0.5% nonfiltrable solids, the filtrate is the extract.

Analytical Results
Values are concentrations of constituent in extract.

Constituent	Concentration, mg/l	Maximum concentration allowed, mg/l
Arsenic		5.0
Barium		100.0
Cadmium		1.0
Chromium, total		5.0
Chromium, hexavalent		5.0
Lead		5.0
Mercury		0.2
Selenium		1.0
Silver		5.0
Endrin		0.02
Lindane		0.4
Methoxychlor		10.0
Toxaphene		0.5
2,4-D		10.0
2,4,5-TP		1.0

PEDCo Environmental, Inc. Submitted by: ____

Figure 13. Laboratory analysis results for vinyl acetate sludge.



RCRA HAZARD ASSESSMENT TEST REPORT

Client: [illegible] Company PN: 400[illegible]
Sample ID: 46[illegible] vinyl chloride sludge
PEDCo Lab No.: CF 10[illegible] Date Received: 12/[illegible]/8[illegible] Date Reported: 1/12/8[illegible]

§261.21 IGNITABILITY

Flash point 6 °F (Max. allowed 140°F)

§261.22 CORROSIVITY

pH ________ (2< pH <12.5 allowed)
NACE corrosion rate ________ mm/yr (Max. allowed 6.35 mm/yr)

§261.23 REACTIVITY

Acid labile cyanide ________
Acid labile sulfide ________

§261.24 EP TOXICITY

Sample type: Solid ________ Semisolid ________ Liquid ________
If liquid or semisolid, non-filterable solids = ________ %

NOTE: If sample contains less than 0.5% nonfiltrable solids, the filtrate is the extract.

Analytical Results
Values are concentrations of constituent in extract.

Constituent	Concentration, mg/l	Maximum concentration allowed, mg/l
Arsenic		5.0
Barium		100.0
Cadmium		1.0
Chromium, total		5.0
Chromium, hexavalent		5.0
Lead		5.0
Mercury		0.2
Selenium		1.0
Silver		5.0
Endrin		0.02
Lindane		0.4
Methoxychlor		10.0
Toxaphene		0.5
2,4-D		10.0
2,4,5-TP		1.0

PEDCo Environmental, Inc. Submitted by: ________

Figure 14. Laboratory analysis results for vinyl chloride sludge.

RCRA HAZARD ASSESSMENT TEST REPORT

Client: [illegible]ankopile Finishing Company PN: 4000
Sample ID: 4664 pickle liquor sludge
PEDCo Lab No.: CF 106 Date Received: 12/1/81 Date Reported: 1/11/82

§261.21 IGNITABILITY

Flash point ____________ °F (Max. allowed 140°F)

§261.22 CORROSIVITY

pH 1.3 (2< pH <12.5 allowed)
NACE corrosion rate ________ mm/yr (Max. allowed 6.35 mm/yr)

§261.23 REACTIVITY

Acid labile cyanide ____________________
Acid labile sulfide ____________________

§261.24 EP TOXICITY

Sample type: Solid ________ Semisolid X Liquid _____
If liquid or semisolid, non-filterable solids = NA %

NOTE: If sample contains less than 0.5% nonfiltrable solids, the filtrate is the extract.

Analytical Results
Values are concentrations of constituent in extract.

Constituent	Concentration, mg/l	Maximum concentration allowed, mg/l
Arsenic	<0.01	5.0
Barium	<0.01	100.0
Cadmium	0.4	1.0
Chromium, total	100	5.0
Chromium, hexavalent	88.0	5.0
Lead	15.0	5.0
Mercury	<0.001	0.2
Selenium	<0.01	1.0
Silver	<0.001	5.0
Endrin		0.02
Lindane		0.4
Methoxychlor		10.0
Toxaphene		0.5
2,4-D		10.0
2,4,5-TP		1.0

PEDCo Environmental, Inc. Submitted by: ____________________

Figure 15. Laboratory analysis results for pickle liquor sludge.

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RCRA HAZARD ASSESSMENT TEST REPORT

Client: Tankoptile Finishing Company PN: 4000
Sample ID: 4000 (metal grinding)
PEDCo Lab No.: CF 107 Date Received: 12/1/81 Date Reported: 1/13/82

§261.21 IGNITABILITY

Flash point ____________ °F (Max. allowed 140°F)

§261.22 CORROSIVITY

pH ________________ (2< pH <12.5 allowed)
NACE corrosion rate __________ mm/yr (Max. allowed 6.35 mm/yr)

§261.23 REACTIVITY

Acid labile cyanide ________________
Acid labile sulfide ________________

§261.24 EP TOXICITY

Sample type: Solid X Semisolid ________ Liquid ________
If liquid or semisolid, non-filterable solids = ______ %

NOTE: If sample contains less than 0.5% nonfiltrable solids, the filtrate is the extract.

Analytical Results
Values are concentrations of constituent in extract.

Constituent	Concentration, mg/l	Maximum concentration allowed, mg/l
Arsenic	<0.01	5.0
Barium	<0.01	100.0
Cadmium	0.6	1.0
Chromium, total	98.3	5.0
Chromium, hexavalent	85.6	5.0
Lead	52.1	5.0
Mercury	<0.001	0.2
Selenium	<0.01	1.0
Silver	<0.001	5.0
Endrin		0.02
Lindane		0.4
Methoxychlor		10.0
Toxaphene		0.5
2,4-D		10.0
2,4,5-TP		1.0

PEDCo Environmental, Inc. Submitted by: ____________________

Figure 16. Laboratory analysis results for metal grindings.

RCRA HAZARD ASSESSMENT TEST REPORT

Client: Tankoo le Finishing Company
Sample ID: 4000 metal hydroxide sludge PN: 4000
PEDCo Lab No.: CP 108 Date Received: 12/1/81 Date Reported: 1/13/82

§261.21 IGNITABILITY

Flash point ________ °F (Max. allowed 140°F)

§261.22 CORROSIVITY

pH ________ (2< pH <12.5 allowed)
NACE corrosion rate ________ mm/yr (Max. allowed 6.35 mm/yr)

§261.23 REACTIVITY

Acid labile cyanide ________
Acid labile sulfide ________

§261.24 EP TOXICITY

Sample type: Solid ________ Semisolid X Liquid ________
If liquid or semisolid, non-filterable solids = ________ %

NOTE: If sample contains less than 0.5% nonfiltrable solids, the filtrate is the extract.

Analytical Results
Values are concentrations of constituent in extract.

Constituent	Concentration, mg/l	Maximum concentration allowed, mg/l
Arsenic	<0.01	5.0
Barium	<0.01	100.0
Cadmium	0.8	1.0
Chromium, total	74.8	5.0
Chromium, hexavalent	63.9	5.0
Lead	49.9	5.0
Mercury	<0.001	0.2
Selenium	<0.01	1.0
Silver	<0.001	5.0
Endrin		0.02
Lindane		0.4
Methoxychlor		10.0
Toxaphene		0.5
2,4-D		10.0
2,4,5-TP		1.0

PEDCo Environmental, Inc. Submitted by: ________

Figure 17. Laboratory analysis results for metal hydroxide sludge.

TABLE 4

PARAMETERS AND RATIONALE FOR THEIR SELECTION

Hazardous waste	Parameter	Rationale
Pickle liquor (hydrochloric acid)	pH, EP toxicity (Pb, Cr^{+6})	The waste is a listed hazardous waste (K062) due to its toxicity (lead and hexavalent chromium) and due to its corrosivity (pH <2).
1,1,1-trichloroethane	1,1,1-trichloroethane	This is a listed toxic waste (F001). There is no reason to believe this waste will contain any other toxic constituents in significant concentrations.
Vinyl acetate sludge	Flash point	This waste is ignitible. Practical grade vinyl acetate has a flash point of 18°F. Knowledge of this value helps to ensure the safe handling of these wastes.
Vinyl chloride sludge	Flash point	The waste is ignitible. Practical grade vinyl chloride has a flash point of -108°F. Knowledge of this value helps to ensure the safe handling of these wastes.
Pickle liquor sludge	pH, EP toxicity (Pb, Cr^{+6})	The waste has an estimated pH value of less than 2, making it a corrosive waste. Also it may contain toxic levels of lead and hexavalent chromium.
Metal grindings	EP toxicity (Pb, Cr^{+6})	The grindings contain lead and hexavalent chromium compounds.
Metal hydroxide sludge	EP toxicity (Pb, Cr^{+6})	The sludge contains lead and hexavalent chromium compounds.

TABLE 5

PARAMETERS AND TEST METHODS

Parameter	Test method	Reference
pH	Electrometric	Test Methods for Evaluating Solid Waste. Physical/ Chemical Methods U.S. EPA SW-846
Flash point	Pensky-Martens closed-cap tester	ASTM Standard D-93-79 or D-93-80
EP toxicity	EP toxicity test procedure	40 CFR 261, Appendix II
1,1,1-trichloroethane	GC/FID	Test Methods for Evaluating Solid Waste. Physical/ Chemical Methods U.S. EPA SW 846.
Lead	Atomic absorption	Methods for chemical analysis of water and wastes, EPA-600/4-79/020, March 1979.
Chromium	Atomic absorption	Methods for chemical analysis of water and wastes EPA-600/4-79/020 March 1979

Methods for Evaluating Solid Waste, Physical/Chemical Methods (EPA Office of Water and Waste Management, SW-846, 1980), or other EPA-approved methods.

C-2c Sampling Methods

Table 6 lists the hazardous wastes stored at the facility and the methods used to sample each.

C-2d Frequency of Analyses

As Table 7 shows, each waste is analyzed yearly. Because wastes generated at this facility do not change significantly, this minimum frequency will continue as long as the quality control program indicates that the products are within 1 percent of specifications. Additional analyses will be performed if a process change should affect the hazardous characteristics of a waste. These analyses will be conducted at the discretion of the plant manager or the regulatory agency.

C-2e Additional Requirements for Waste Generated Offsite

This facility only handles on-site generated wastes; therefore, requirements for wastes received from off-site generators do not apply.

TABLE 6

METHODS USED TO SAMPLE HAZARDOUS WASTES

Hazardous waste	Sampling method	Description of sampling	Reference for sampler
Pickle liquor	Sampling a Storage Tank from "Samplers and Sampling Procedures for Hazardous Waste Streams," EPA-600/2-80-018, page 38, which appears in reference for sampler	Composite sample using a Coliwasa sampler from 3 grab samples at top, middle, and bottom of tank	Test Methods for the Evaluation of Solid Waste. Physical/Chemical Methods EPA-SW-846
1,1,1-trichloroethane	Sampling a Storage Tank from "Samplers and Sampling Procedures for Hazardous Waste Streams," EPA-600/2-80-018, page 38, which appears in reference for sampler	Composite sample using a Coliwasa sampler from 3 grab samples at top, middle, and bottom of tank	Test Methods for the Evaluation of Solid Waste. Physical/Chemical Methods EPA-SW-846
Vinyl acetate sludge	ASTM Standard D346-75. Soil or rock-like material	Representative composite sample from 3 grab samples at top, middle, and bottom of drum using a split tube thief sampler	Test Methods for the Evaluation of Solid Waste. Physical/Chemical Methods, EPA-SW-846 Section 3.2.4
Vinyl chloride sludge	ASTM Standard D346-75. Soil or rock-like material	Representative composite sample from 3 grab samples at top, middle, and bottom of drum using a split tube thief samplers	Test Methods for the Evaluation of Solid Waste. Physical/Chemical Methods, EPA-SW-846 Section 3.2.4

(continued)

TABLE 4 (continued)

Hazardous waste	Sampling method	Description of sampling	Reference for sampler
Pickle liquor sludge	ASTM Standard D346-75. Soil or rock-like material	Representative composite sample from 3 grab samples at top, middle, and bottom of drum using a split tube thief sampler	Test Methods for the Evaluation of Solid Waste. Physical/Chemical Methods, EPA-SW-846 Section 3.2.4
Metal grindings	ASTM Standard D140-70. Crushed or powdered material	Representative composite sample from 3 grab samples at top, middle, and bottom of drum using a Trier scoop	Test Methods for the Evaluation of Solid Waste. Physical/Chemical Methods, EPA-SW-846 Section 3.2.5
Metal hydroxide sludge	ASTM Standard D346-75. Soil or rock-like material	Composite sample using a Trier scoop from 6 grab samples through three different points near the top of the pile to points diagonally opposite the point of entry	Test Methods for the Evaluation of Solid Waste. Physical/Chemical Methods, EPA-SW-846 Section 3.2.5

TABLE 7

FREQUENCY OF ANALYSIS

Hazardous waste	Analysis	Frequency
Pickle liquor (hydrochloric acid)	pH, EP toxicity (Pb, Cr)	Annually
1,1,1-trichloroethane	1,1,1-trichloroethane	Annually
Vinyl acetate sludge	Flash point	Annually
Vinyl chloride sludge	Flash point	Annually
Pickle liquor sludge	pH, EP toxicity (Pb, Cr)	Annually
Metal grindings	EP toxicity (Pb, Cr)	Annually
Metal hydroxide sludge	EP toxicity (Pb, Cr)	Annually

SECTION D

PROCESS INFORMATION

The information provided in this section is submitted in accordance with the requirements of 40 CFR Part 122.25(b)(1), (2), and (4). Other regulations addressed to complete this section include 40 CFR §264.17, §264.175, §264.176, §264.177, §264.191, §264.192, §264.198, §264.199, §264.252, §264.253, §264.256, and §264.257.

This section discusses specific process information for the storage of containers, tanks, and waste piles. The Tankopile Finishing Company has a 1125-ft^2 container storage area, two 7500-gallon storage tanks, and one 50-yd^3 waste pile. The waste pile containment system, container storage area, and tank storage area designs and specifications were all certified by a registered professional engineer.

D-1 Containers [40 CFR 122.25(b)(1)]

D-1a Containers

The maximum inventory of drums in storage at any given time during the operating life of the facility is not expected to exceed 100 drums. The container storage area, which is located outdoors at the northeast end of the facility, currently holds this amount. Drummed waste includes vinyl acetate sludge vinyl chloride sludge, pickle liquor sludge, and metal grindings, all of which contain free liquids. Consequently, specific information provided in this section will follow a format required for containers storing free liquids.

There is 1125 ft^2 in the container storage area, 225 ft^2 for ramp areas providing forklift access to each of the storage sections, 27 ft^2 for sump areas, and 469 ft^2 for aisle space. The remaining 404 ft^2 is actual storage area, and is divided into three sections (storage areas A, B, and C) separated by curbs to permit the storage of incompatible wastes. A plan view and cross-sectional view of the container storage area is provided in Figures 18 and 19. Storage areas A, B, and C presently hold 44, 34, and 22 drums, respectively. Stacked three drums high, storage areas A, B, and C have the capacity to hold as many as 210, 102, and 51 drums, respectively, or a total of 363 drums, however 100 drums or less are stored in this area at any given time.

D-1a(1) Description of Containers

Steel 55-gallon drums are used at the facility to store the wastes listed above in D-1a. The drums are color coded and constructed of low carbon steel that meets U.S. Department of Transportation Specification No. 17C. The ignitable vinyl acetate and vinyl chloride sludges are contained in drums painted white to reflect solar heat as a possible

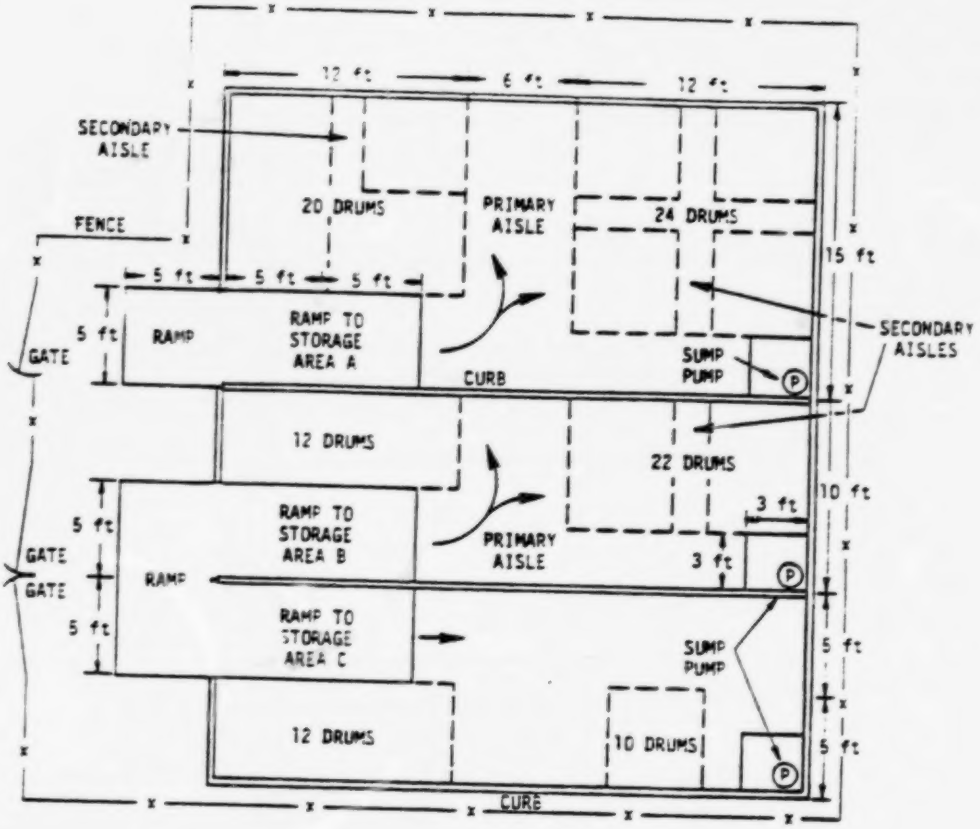
12 ft
6 ft
12 ft
SECONDARY AISLE
20 DRUMS
PRIMARY AISLE
24 DRUMS
FENCE
15 ft
5 ft
5 ft
5 ft
5 ft
RAMP
RAMP TO STORAGE AREA A
GATE
SUMP PUMP
SECONDARY AISLES
CURB
12 DRUMS
22 DRUMS
10 ft
3 ft
5 ft
RAMP TO STORAGE AREA B
PRIMARY AISLE
3 ft
GATE
GATE
RAMP
5 ft
RAMP TO STORAGE AREA C
SUMP PUMP
5 ft
12 DRUMS
10 DRUMS
5 ft
CURB

Figure 13. Plan view of container storage area.

STATE OF RHODE ISLAND
JANE
Q.
DOE
50005
REGISTERED
PROFESSIONAL ENGINEER

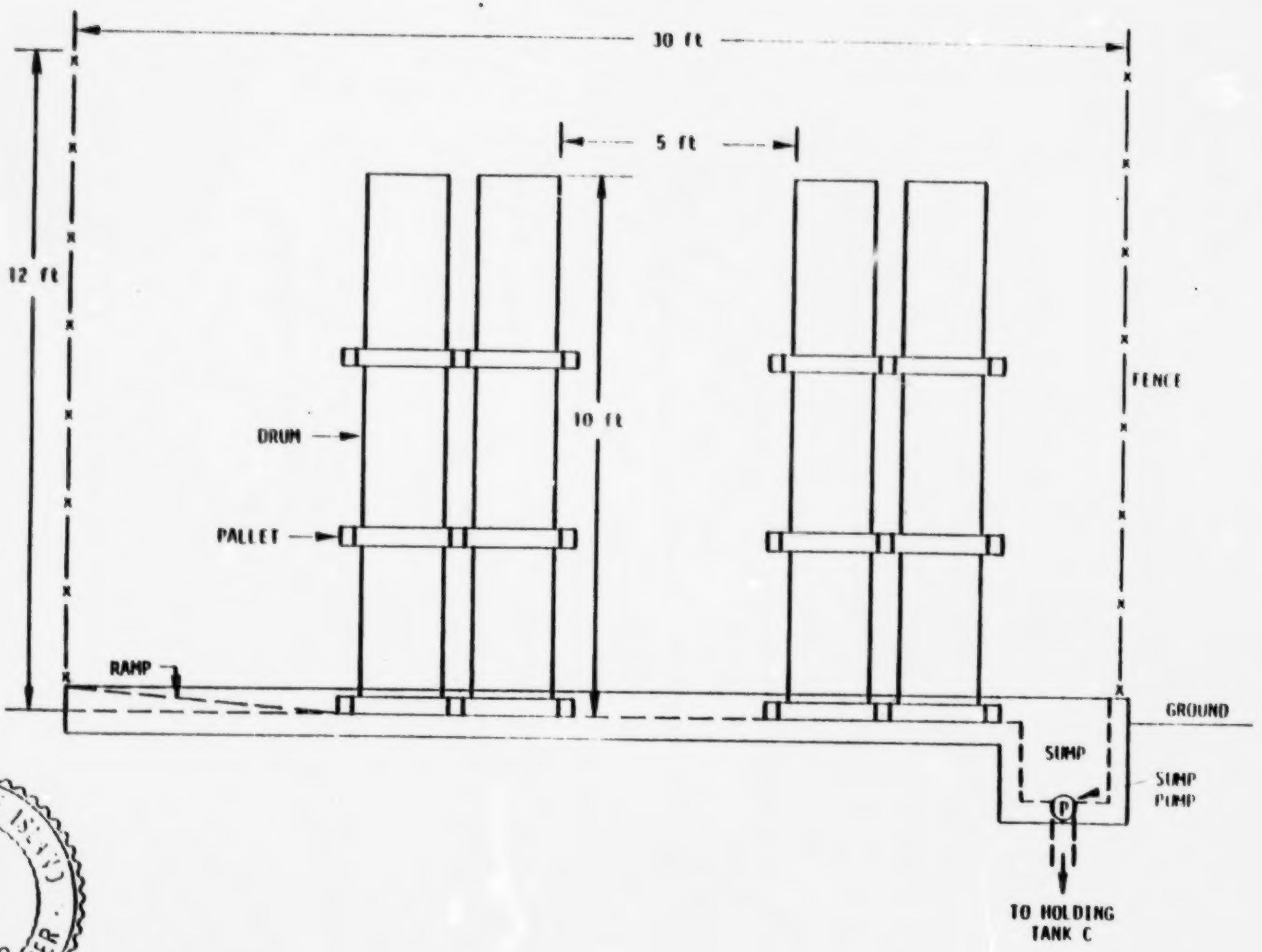
30 ft
12 ft
5 ft
10 ft
DRUM
PALLET
RAMP
FENCE
GROUND
SUMP
SUMP PUMP
P
TO HOLDING TANK C

Figure 19. Cross-sectional view of container storage area.

JANE Q. DOE 50005

ignition source. These drums are protected against corrosion by epoxy phenolic linings. Yellow drums are used to store pickle liquor sludge are equipped with polyethlyene liners. Blue drums used to store metal grindings do not require a liner for chemical protection.

D-1a(2) Container Management Practices

Prior to transfer to the container storage area, sludge and grinding wastes generated in the processing area are placed in the proper color-coded drums, sealed, and labeled according to Department of Transportation regulations for hazardous materials. Transfer of drums to the container storage area is performed by a forklift truck. The forklift operator accesses the storage area with a key and places the yellow (corrosive sludge) drums in storage area A, the blue (toxic metal grindings) drums in storage area B, and the white (ignitable sludges) drums in storage area C. During the transfer of drums from the process area to the container storage area, the yellow, blue, and white drums are always transferred separately from the other colors because of their incompatibility. At Tankopile there are no sources of ignition such as an open flame.

The drums are stored on pallets to elevate them from contact with standing liquids, and if necessary, the drums are stacked as high as 12 ft (3 drums). Primary aisle space of at least 5 ft is maintained at all times, and the container storage area is inspected regularly (see Section F-2).

D-1a(3) Secondary Containment System Design and Operation

The container storage area pad is constructed of concrete, designed for loads of 25 lb/in^2. A 6-in.-high concrete curb lines the perimeter of the storage area to provide a holding capacity of 3276 gallons, or more than 50 percent of the total volume held by the estimated maximum inventory. Below are the calculations involved in determining holding capacity:

$$1125\ ft^2 - 225\ ft^2\ (\text{ramp areas}) = 875\ ft^2$$

$$750\ ft^2 \times 0.5\ ft\ (\text{curb height}) = 443\ ft^3$$

$$1\ ft^3 = 7.48\ gal$$

$$438\ ft^3 \times 7.48\ gal = 3276\ gal$$

The concrete pad is presently in good condition, free of any gaps holes or cracks. The concrete pad in area A is specially coated with epoxy to prevent damage in the event of a spill. Two other 6-in. curbs within the storage area were constructed as partitions to permit the storage of incompatible wastes in the same storage area. The base of the storage area is constructed of 6-in.-thick concrete, and the surface in each storage section is sloped 2 percent towards its respective sump area.

The pad will be regularly inspected as discussed in Section F-2 to ensure that it remains impervious and in good condition. Automatic sump pumps activated by level switches are installed in each of the sump areas. The pumps operate at 32 gallons per minute sending collected liquids to three separate secondary holding tanks (see Section D-1a(4)). This prevents any possible overflow of the collection system from precipitation, leaks, or spills. To date, the secondary containment system has been able to hold rainfall from the most severe thunderstorms without risk of rising above the curb.

Run-on is prevented from entering the containment area by several means. Besides the presence of a 6-in. curb at the perimeter of the storage area, the land immediately surrounding the containment area is graded to encourage drainage away from the area. In addition, drain tiles at the perimeter of the containment curb drain any collected water to the sewer system.

A 12-ft-high, chain-link fence with two lockable gates was installed to ensure safety and security (Figure 18).

D-1a(4) Removal of Liquids From Collection System

Storage areas A, B, and C have separate sump areas and sump pumps to allow for the removal of any leaks or spills to three secondary holding tanks located just west of the processing area (Figure 4). A 10,000-gallon holding tank receives precipitation, leaks, or spills from storage area A, a 35,000-gallon holding tank receives discharges from storage area B and leachate runoff from the waste pile area, and a 5,000-gallon holding tank receives discharges from storage area C. These collection systems were designed to handle the maximum 24-hour rainfall recorded in Anytown (in 24 years). Discharges remain in the holding tanks until laboratory analyses indicate whether they are either hazardous or acceptable for release to the municipal sewer system. If laboratory analyses indicate that a holding tank contains hazardous waste, the material will be removed from the tank, drummed, labeled, and transferred to the appropriate container storage (A, B, or C).

D-1b Containers Without Free Liquids

The Tankopile Finishing Company does not currently manage containers without free liquids. Therefore, Permit Application Sections D-1b, D-1b(1), D-1b(2), D-1b(3), and D-1b(4) are not applicable.

D-2 Tanks [40 CFR 122.25(b)(2)]

D-2a Description of Tanks

Two 7500-gallon vertical tanks with a total holding capacity of 15,000 gallons provide storage for wastes generated from the degreasing, painting, and metal finishing operations. The two storage tanks, designated as ST-101 and ST-102, contain spent hydrochloric acid (pickle liquor) and 1,1,1-trichloroethane solvent, respectively (Figure 20). The pickle liquor waste has a specific gravity of 1.0507, and the 1,1,1-trichloroethane solvent waste has a specific gravity of 1.299. Both tanks have been fabricated and stamped in accordance with ASME Code Section VIII, 1971. Table 8 gives the individual tank dimensions and capacities.

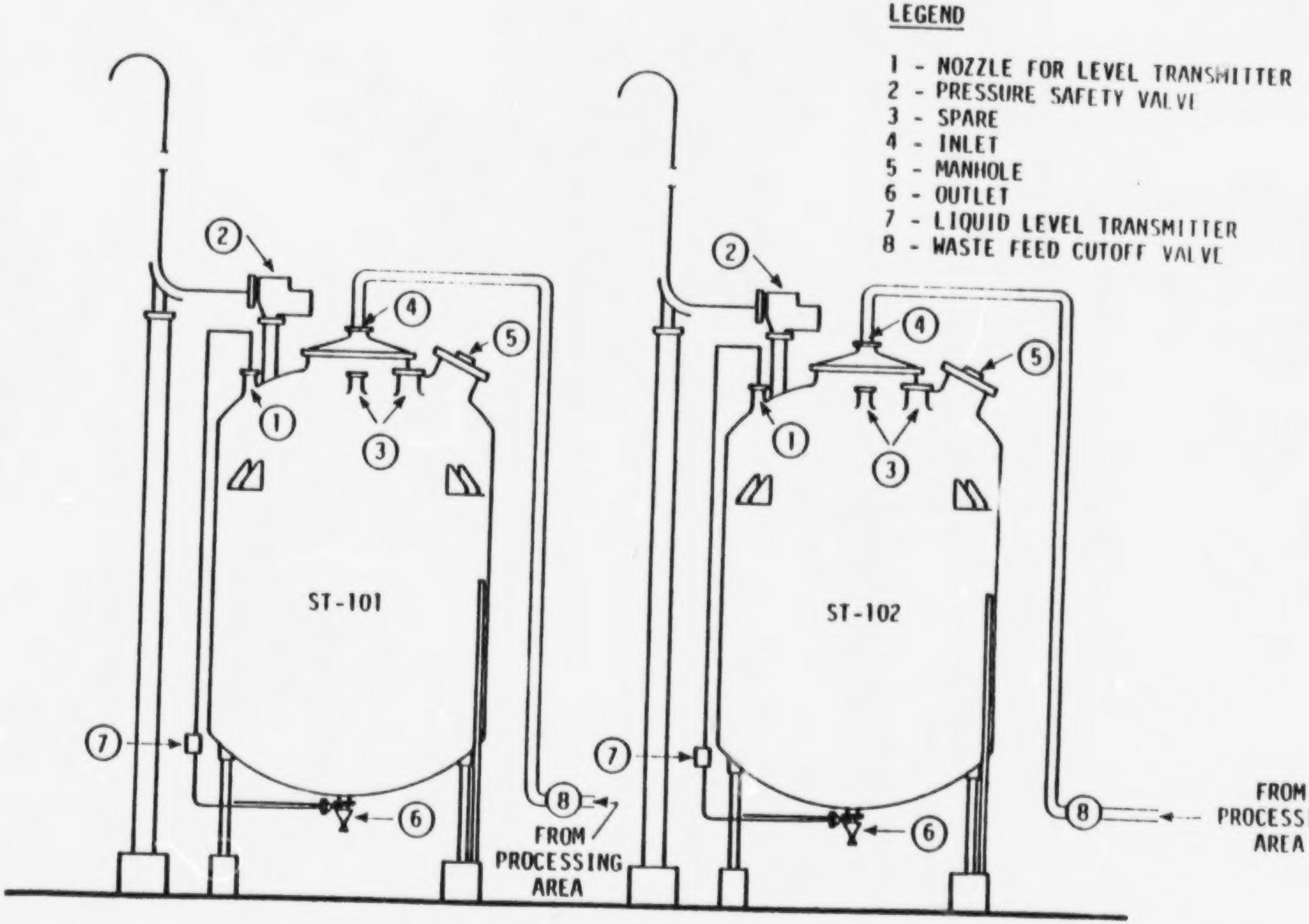
LEGEND
1 - NOZZLE FOR LEVEL TRANSMITTER
2 - PRESSURE SAFETY VALVE
3 - SPARE
4 - INLET
5 - MANHOLE
6 - OUTLET
7 - LIQUID LEVEL TRANSMITTER
8 - WASTE FEED CUTOFF VALVE
ST-101
ST-102
FROM PROCESSING AREA
FROM PROCESSING AREA
1
2
3
4
5
6
7
8

Figure 20. Waste storage tanks.

TABLE 8

PHYSICAL CHARACTERISTICS OF STORAGE TANKS

Item	Tank identification No.	
	ST-101	ST-102
Capacity, gal	7500	7500
Shell thickness, in. (design)	0.703	0.703
Shell thickness, in. (present)	0.699	0.700
Dimensions, in.		
Straight side	200.4	200.4
Diameter	118.1	118.1

The shells of Tanks ST-101 and ST-102 are constructed of standard A285 Grade B carbon steel (0.22% carbon) with a tensile strength of 50,000 to 70,000 psi.

Each tank is structurally supported in eight equally spaced locations on the concrete slab. The supports are raised 6 in., and each is secured to the slab by four No. 4 rods with three No. 3 ties. The tanks are secured to supports with 4-3/4-in. Type AB-3 anchor bolts. Tanks ST-101 and ST-102 are both equipped with an 18-in. manhole, a conservation vent, a liquid level transmitter, an inlet and outlet, and spare nozzles. The pad is designed for loads of 250 lb/in^2.

D-2b Tank Corrosion and Erosion

Storage tanks ST-101 and ST-102 are glass-lined (3/32-inch or 2 mm) for chemical and corrosion resistance. Glass-lined tanks have been shown to be very resistant to a variety of chemicals in a wide range of concentrations, including hydrochloric acid. Furthermore, water absorption is minimal, and organic liquids such as 1,1,1-trichloroethane produce no measurable chemical effect on the glass lining. According to manufacturer specifications, glass linings exposed to boiling hydrochloric acid solutions (20 percent) exhibit low corrosion rates of 0.01626 and 0.02108 mm/yr. At the range of rates, the expected lifetime for a 0.91 mm thick lining would be 43 to 56 years. Since Tankopile's tanks are lined with 2 mm of glass, their expected lifetime is roughly 90 - 120 years.

Weld seams on tanks ST-101 and ST-102 were examined by radiography and liquid penetrant. The radiographic inspection detected no discontinuities in the weld seams, such as porosity, tungsten inclusions, incomplete penetration, slag inclusions, lack of fusion, cracks, icicles, burnthrough, or undercut, that were judged unacceptable to the code. The liquid penetrant also failed to detect any discontinuities in the weld seams. The glass linings of the tanks were spark-tested at 6000 volts for discontinuities, and none were found.

D-2c Tank Management Practices

A simplified process flow diagram is shown in Figure 21. Spent 1,1,1-trichloroethane solvent wastes and spent hydrochloric acid wastes generated from the degreasing and metal finishing operations are pumped directly to ST 102 and ST101, respectively, storage tanks through separate piping systems (3-inch lines). When the tanks are filled to near capacity, the spent hydrochloric acid is pumped to a tanker (by use of a positive displacement pump) and transported to a local publicly owned treatment works (POTW) for treatment. The 1,1,1-trichloroethane solvent is pumped to a tanker in a similar manner, and the waste is transported to a reclamation facility.

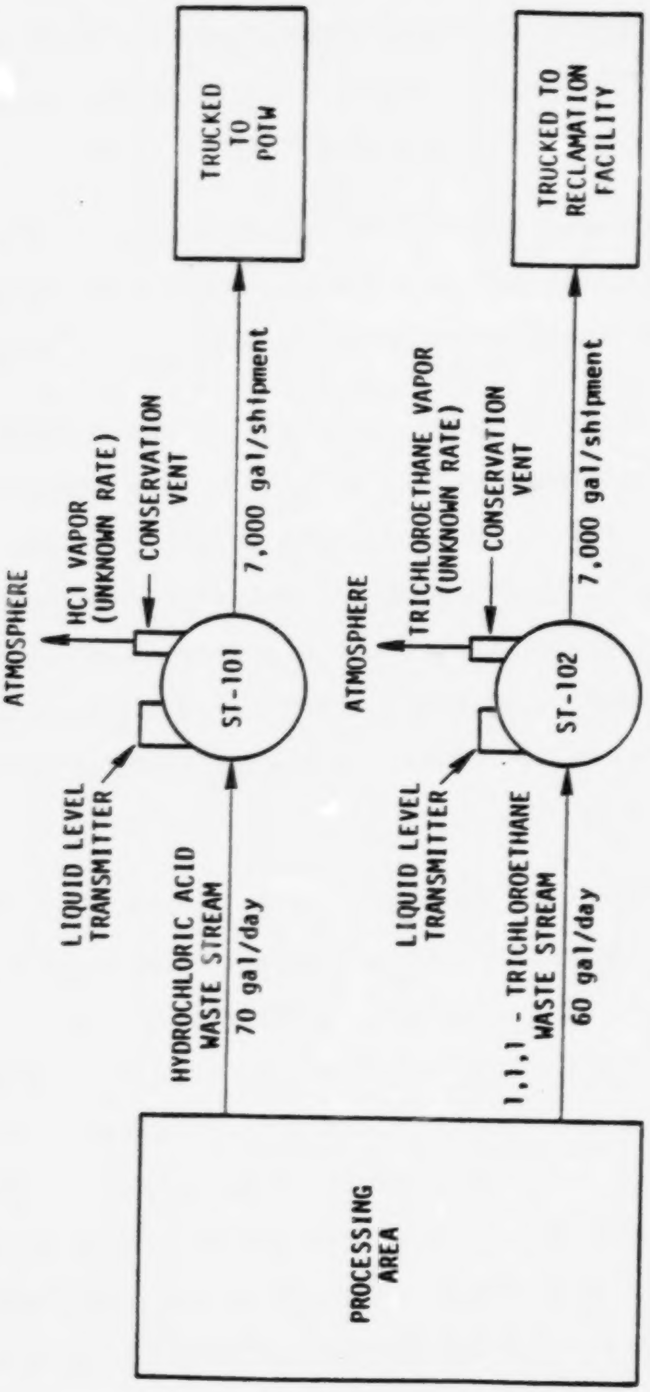
PROCESSING AREA
HYDROCHLORIC ACID WASTE STREAM
70 gal/day
LIQUID LEVEL TRANSMITTER
ST-101
ATMOSPHERE
HCl VAPOR (UNKNOWN RATE)
CONSERVATION VENT
7,000 gal/shipment
TRUCKED TO POTW
1,1,1 - TRICHLOROETHANE WASTE STREAM
60 gal/day
LIQUID LEVEL TRANSMITTER
ST-102
ATMOSPHERE
TRICHLOROETHANE VAPOR (UNKNOWN RATE)
CONSERVATION VENT
7,000 gal/shipment
TRUCKED TO RECLAMATION FACILITY

Figure 21. Process flow diagram.

A piping and instrumentation diagram showing the storage tanks, instrumentation, and waste feed cutoff valves is presented in Figure 22. Inlet valves are manually operated to control waste flow and prevent overfilling.

The waste storage tanks are situated on a 44-ft by 22-ft concrete pad. The pad is 1 ft thick and reinforced with No 5 rods at the top and bottom spaced 12 in. apart.

The pressure safety valves installed on the storage tanks are Teflon-coated and spring-set to relieve pressures at ±6 in. H_2O (0.22 psig). The required capacity of the vents is 7500 scf/h and they are pressure set at 110 percent overpressure. Exit from the vents is connected directly to the atmosphere, which provides a constant back pressure. Under normal conditions the vents operate at 55°F, although their range is 0°F to 110°F.

The Taylor Model 3423 TD liquid-level transmitter is a remote seal instrument that measures liquid levels from 0 to 200 in. H_2O. The pressure differential in a closed tank actuates the transmitter and converts the differential pressure measurement into an electrical signal (level indicator) by a resistance-strain gage circuit. The transmitter is powered by 24V d.c. and has an output range of 4 to 20 mA d.c. Calibration accuracy of the instrument is ± 0.5 percent of span (0.25 percent ultimate capability). The measuring element operates at ambient temperatures of

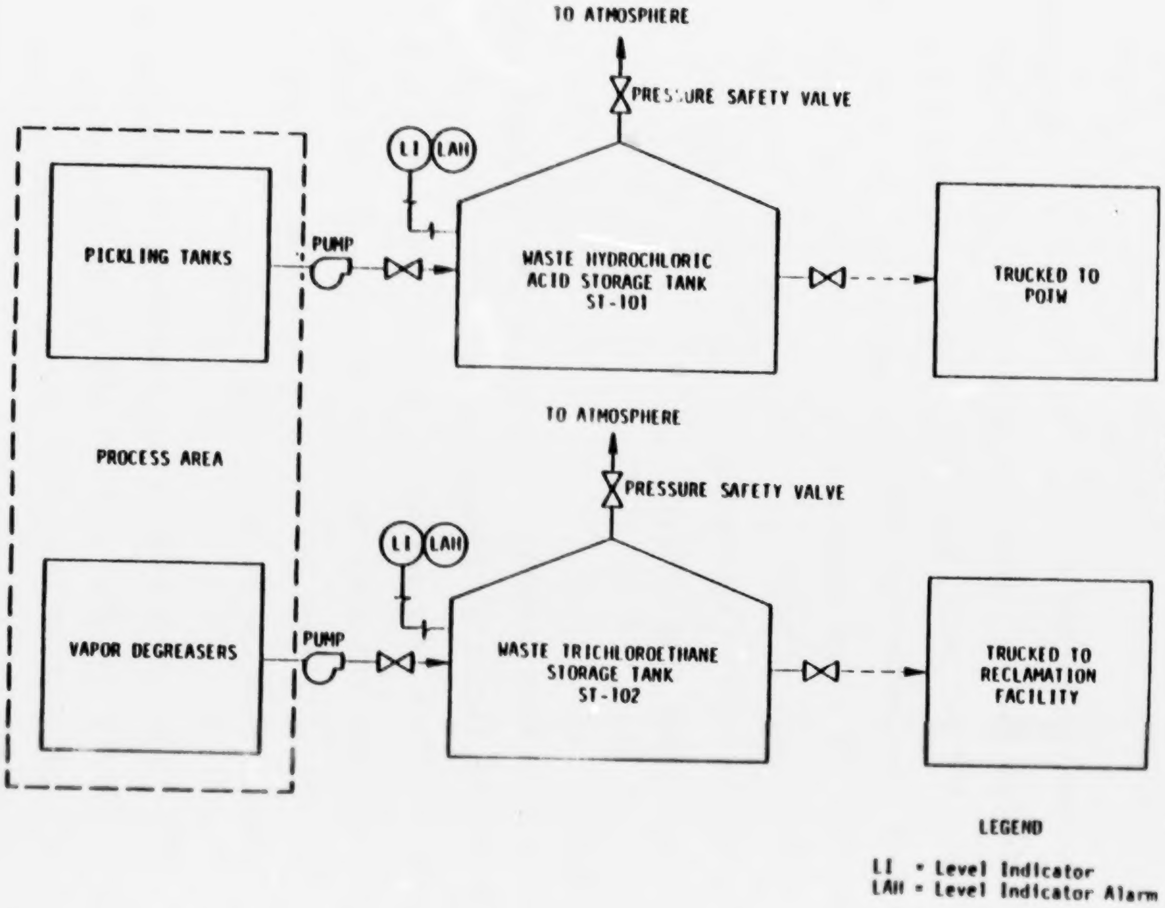
TO ATMOSPHERE
PRESSURE SAFETY VALVE
LI
LAH
PICKLING TANKS
PUMP
WASTE HYDROCHLORIC ACID STORAGE TANK ST-101
TRUCKED TO POTW
PROCESS AREA
TO ATMOSPHERE
PRESSURE SAFETY VALVE
LI
LAH
VAPOR DEGREASERS
PUMP
WASTE TRICHLOROETHANE STORAGE TANK ST-102
TRUCKED TO RECLAMATION FACILITY
LEGEND
LI = Level Indicator
LAH = Level Indicator Alarm

Figure 22. Piping and instrumentation diagram for hazardous waste storage in tanks.

JANE Q DOE 50005

-40°F to 300°F, whereas the transmitter housing can withstand temperatures of -40°F to 185°F. The explosion-proof transmitter housing is made of aluminum with a low copper content and is mounted directly to the tank.

As discussed in Section F-2a(2), the tank level indicators are inspected daily. Since the tanks are slowly filled two to three times per year, the daily inspection should allow ample time to prepare for emptying the tanks. As a back-up precaution, level indicator alarms (LAH) have been added to each tank to warn of high fill levels. In such an unlikely event, the tank inlet valves can be manually closed to prevent the tanks from overfilling.

D-3 Waste Piles

The waste pile area presently located in the northeastern section of the facility, approximately 500 ft from the warehouse building, was installed in May 1978. This pile will be moved by June 1982 to a new location on the site which will meet the same design specifications and operating procedures as the existing waste pile.

Wastes generated by the processing operations at Tankopile Finishing Company and destined for the waste pile area consist of metal hydroxide sludge, which is classed as a toxic hazardous waste because of its hexavalent chromium and lead content. The waste pile contains free liquids; consequently, specific information provided in this section follows the format required for waste piles with free liquids.

Several control systems and structural features of the waste pile area are discussed throughout this section; therefore, reference to section and plan views of the waste pile area (Figures 23 and 24) will greatly assist the reader. Some of the control systems and structures addressed are control of wind dispersal; control of run-on; collection of leachate and run-off; foundation; waste pile base; containment system design; vegetation and rodent control; and equipment and procedures for waste pile movement.

D-3a Piles With Free Liquids

D-3a(1) Control of Wind Dispersal

Two design factors were addressed to control wind dispersal of the hazardous waste pile. First, the slope of the pile was reduced to 7:1, which creates a relatively flat pile with less resistance to air flow. Second, the banks of the containment area, which were built to protect the liner and foundation, further reduce pile exposure to wind currents, because they rise one foot above ground level. As a result of both of these factors, only about 1½ ft of the waste pile is exposed to air flow. Furthermore, as a result of regular inspections, the waste pile will be moistened by a water truck before the waste pile becomes dry and fugitive emissions develop.

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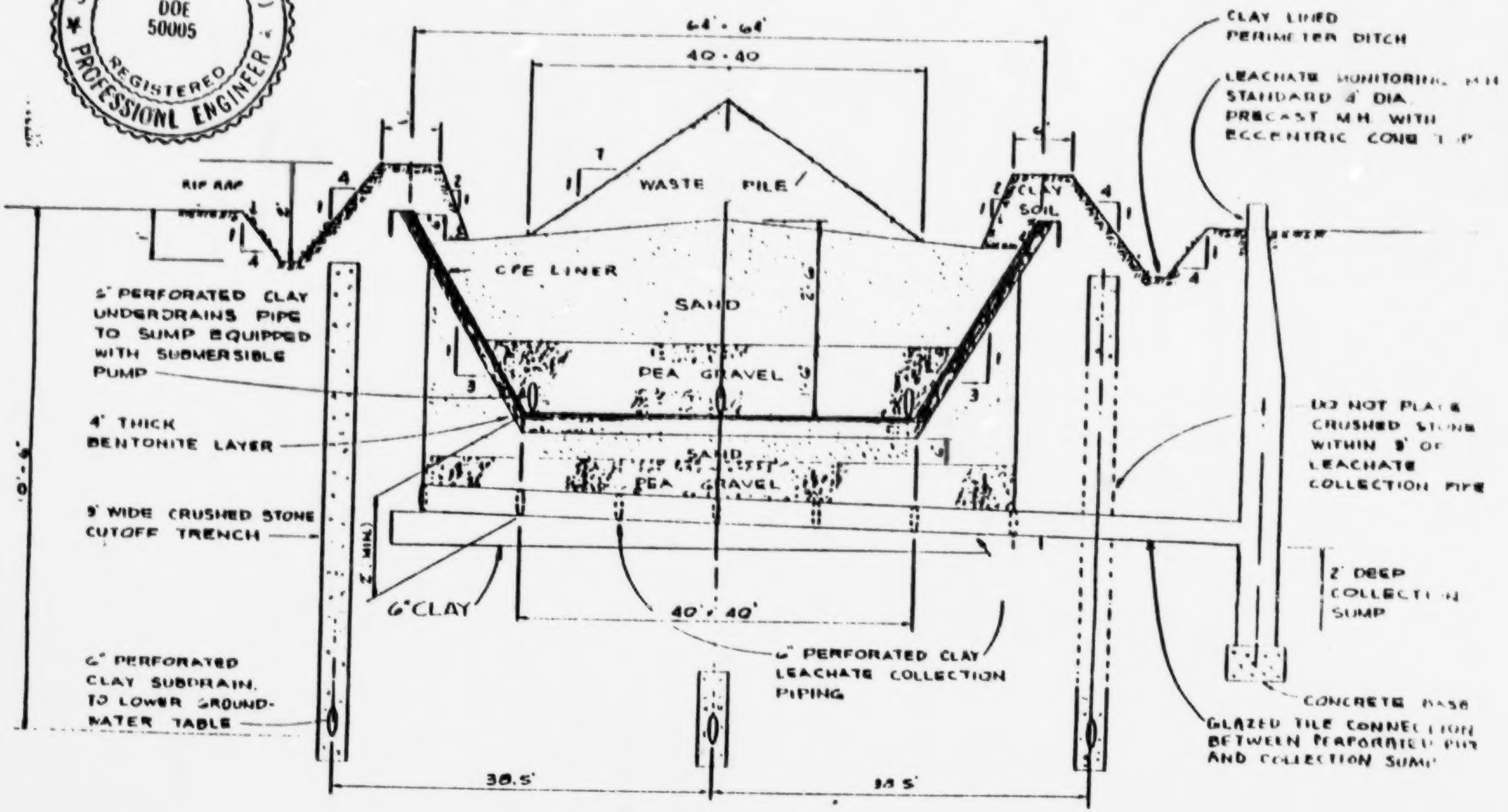
64' · 64'
40 · 40
WASTE PILE
RIP RAP
CLAY SOIL
CPE LINER
SAND
PEA GRAVEL
SAND
PEA GRAVEL
6" PERFORATED CLAY UNDERDRAINS PIPE TO SUMP EQUIPPED WITH SUBMERSIBLE PUMP
4' THICK BENTONITE LAYER
9' WIDE CRUSHED STONE CUTOFF TRENCH
6" CLAY
2' MIN.
6" PERFORATED CLAY SUBDRAIN, TO LOWER GROUND-WATER TABLE
40' · 40'
6" PERFORATED CLAY LEACHATE COLLECTION PIPING
38.5'
38.5'
CLAY LINED PERIMETER DITCH
LEACHATE MONITORING MH STANDARD 4' DIA. PRECAST M.H. WITH ECCENTRIC CONE TOP
DO NOT PLACE CRUSHED STONE WITHIN 3' OF LEACHATE COLLECTION PIPE
2' DEEP COLLECTION SUMP
CONCRETE BASE
GLAZED TILE CONNECTION BETWEEN PERFORATED PIPE AND COLLECTION SUMP
CONTAINMENT SYSTEM SECTION
A-E DESIGN ASSOCIATES
ARCHITECTS AND ENGINEERS
CINCINNATI

Figure 23. Containment system section.

STATE OF RHODE ISLAND
REGISTERED PROFESSIONL ENGINEER
JANE Q. DOE
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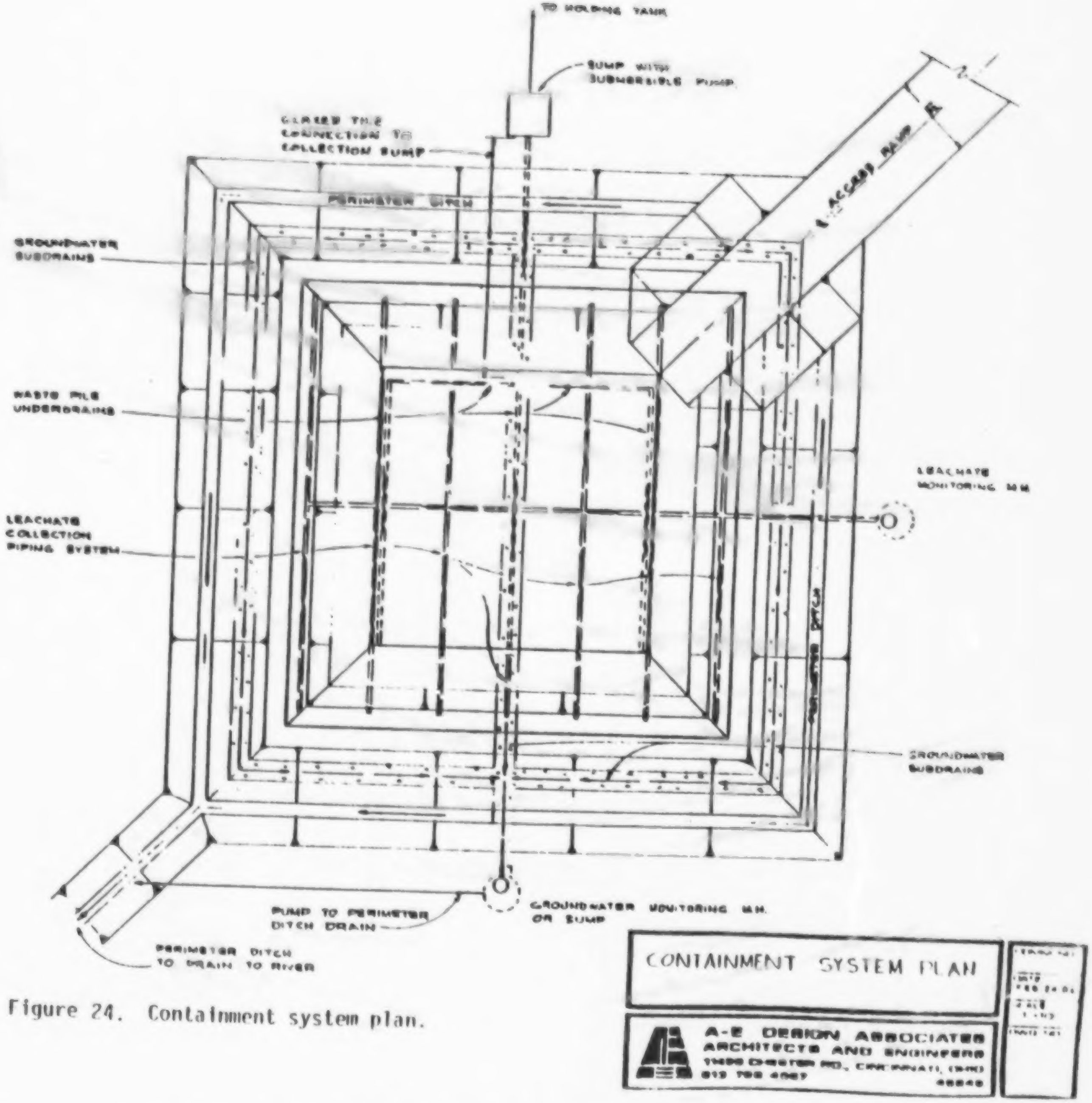
TO HOLDING TANK
SUMP WITH SUBMERSIBLE PUMP
CLOSED TILE CONNECTION TO COLLECTION SUMP
PERIMETER DITCH
ACCESS RAMP
GROUNDWATER SUBDRAINS
WASTE PILE UNDERDRAINS
LEACHATE COLLECTION PIPING SYSTEM
LEACHATE MONITORING M.H.
PERIMETER DITCH
GROUNDWATER SUBDRAINS
PUMP TO PERIMETER DITCH DRAIN
GROUNDWATER MONITORING M.H. OR SUMP
PERIMETER DITCH TO DRAIN TO RIVER
CONTAINMENT SYSTEM PLAN
A-E DESIGN ASSOCIATES
ARCHITECTS AND ENGINEERS
CINCINNATI, OHIO

Figure 24. Containment system plan.

D-3a(2) Control of Run-on

The run-on diversion system consists of a ditch (diversion canal) surrounding the waste pile containment system. The ditch is 10 ft wide and has 4:1 sloped banks. The banks of the diversion canal are lined with several inches of clay soil with a permeability of 10^{-8} cm/s (measured using a Double Ring Infiltrometer) to reduce infiltration (which could possibly reach the leachate and ground water collection systems). In addition to the moderate slope of the diversion canal banks, riprap was applied to the banks to reduce erosion. The diversion canal is sloped away from the waste pile area and drains by gravity directly to the Queen River.

D-3a(3) Collection of Leachate and Runoff

The leachate and runoff collection system is composed of a network of 6-in.-diameter, vitrified clay, perforated pipe connected together and then inserted through the liner and foundation to a sump area. Pipe leaving the foundation to the sump area is 6-in.-diameter, vitrified clay, nonperforated pipe that allows conveyance of runoff to the sump area without contaminating the soil and ground water. The piping network consists of three parallel sections of pipe at the bottom of the pea gravel, perpendicularly connected at one end by another section of pipe. Leachate and runoff collected in the perpendicular pipe is gravity-fed to an adjoining pipe and carried through the liner and foundation to a sump area where it is automatically pumped to a 35,000-gallon holding tank. Waste in the holding tank will be analyzed for lead and hexavalent chromium and subsequently discharged to the sewer system if found not to be a hazardous. If the waste is hazardous, it will be trucked to Waste Treatment, Inc. located in Anytown, Rhode Island.

D-3a(4) Foundation

The foundation supporting the synthetic liner, base, runoff collection and removal system, and the waste pile is constructed of a Bentonite-treated soil 4 in. thick. The floor of the foundation covers 1600 ft^2 (40 feet square) and the walls are sloped 3:1, which results in an upper foundation opening of 40[illegible] ft^2 (64 feet square). The manufacturer of the Bentonite material used for this waste pile projects that it will last for a period of 20 years.

D-3a(5) Waste Pile Base

The base material supporting the waste pile consists of 2½ ft of coarse sand on top of 1½ ft of pea gravel. The base materials serve several functions. First, the sand and gravel combination permits rapid percolation of runoff through the base to a holding tank via the runoff collection and removal system. This prevents precipitation and free liquids from overflowing the banks of the containment system. Secondly, the base material reduces both the concentration and contact time between contaminated runoff and the chlorinated polyethylene (CPE) liner, which in turn increases the longevity of the liner. Finally, the base permits movement of mechanical equipment in the waste pile area without damage to the liner and prevents exposure of the liner to direct sunlight which can dry the liner and significantly reduce its life. After periodic removal of the waste pile to a disposal site, any lost sand will be replaced to the original design depth. The waste pile base is designed for loads up to 15 lb/in^2.

D-3a(5)(a) Containment System Design

Adjoined to the foundation with adhesive and mechanical fasteners is a chlorinated polyethylene (CPE), oil-resistant, reinforced liner (primary liner) 45 mil in thickness. The CPE liner, which has a permeability of less than 10^{-12} cm, was specifically recommended for the metal hydroxide sludge by the manufacturer because they are compatible. The existing liner has a project life of 10 years, which expires in May. 1998. The new liner, scheduled to be put under the waste pile when it is moved in June, 1982, is also projected to last 20 years, until June, 2002. Other pertinent characteristics of the CPE liner are provided in Table 9.

D-3a(5)(b) Leachate Detection, Collection, and Removal System

Directly underneath the foundation is a layer of sand and pea gravel, under which is a network of 6-in.-diameter, vitrified clay, perforated pipes. Under the pipes is a 6-in.-thick layer of bentonite clay. This backup leachate collection system is designed to operate in the event of

TABLE 9

PROPERTIES OF CHLORINATED POLYETHYLENE (CPE) OIL-RESISTANT LINER

Property	Minimum manufacturing specifications	Test method
1. Fabric (polyester)	Denier, 2½ tpi	
2. Laminate thickness	± 10% of specified thickness	ASTM D-751
3. Cold bend (36 mil)	-25°F No cracks	ASTM D-2136 1/8 in. mandrel
4. Tensile strength, lb Grab method	200	ASTM D-751
5. Tear strength, lb Tongue tear method	80	ASTM D-751
6. Puncture resistance, lbs.	NA[a]	FTM-101B 2031
7. Hydrostatic resistance	250	ASTM D-751
8. Dimensional stability 2 h at 150°F 1 h at 212°F	< ± 2%	ASTM D-1204-54
9. Ozone resistance	No effect	ASTM D-1149 3 ppm at 30% strain at 104°F for 72 h
10. Seam strength, lb	170	ASTM D-751

[a] NA - not available.

liner failure. If a leak develops in the containment system, the leachate will percolate rapidly through the sand and gravel to the leachate collection system and provide an early warning of liner failure. The piping network of the leachate collection system consists of seven 60-ft parallel sections of pipe spaced approximately 10 ft apart and an additional perpendicular pipe that connects all the pipes. The perpendicular pipe drains any collected leachate to a leachate-monitoring manhole. The perpendicular pipe, which extends from the side of the sand and pea gravel to the manhole, is glazed and has lipped connections secured with caulk. If the pipe were not impervious groundwater could penetrate the system and indicate false negative leachate quantities. The 4-ft-diameter manhole is equipped with a 2-ft-deep collection sump and ladder for manual measurement of leachate collection. The sump area has a capacity of 188 gallons. If leachate is collected and removal is desired, a portable sump pump is used to evacuate the manhole to 55-gallon drums for analyses, and if necessary, to storage and disposal.

D-3a(6) Ground Water Table Control

As described under separate cover in the "Hydrogeologic Evaluation Report", the ground water table in the Anytown, Rhode Island area is typically 10 ft below ground surface. Therefore, Tankopile Finishing Company constructed the following ground water table control system in an effort to prevent the ground water table from rising to the leachate collection system (giving false positive leachate quantities). A network of 6-in.-diameter, vitrified clay, perforated pipes (subdrains) were installed at a depth of 10½ ft within 3-ft-wide cutoff trenches filled with crushed stone. The cutoff trenches extend vertically from a foot below ground surface to a depth of 11 ft. The network consists of five subdrain sections, four forming a square (80 ft to a side) around the containment area and another connecting two of the sides. All of the subdrains drain together, by gravity, to a ground water-monitoring manhole and sump. Ground water in the sump is automatically pumped to the outlet of the run-on diversion canal for discharge into the Queen River. Ground water discharged from the manhole is metered for informational purposes.

D-3a(7) Vegetation and Rodent Control

Prior to the construction of the waste pile containment system in May 1978, isopropyl N-phenylcarbamate (herbicide) was applied to the immediate area. If vegetation is observed during the life of the waste pile, weeds will be removed by hand or another herbicide treatment will be applied.

In an effort to control rodents in the area, chloralose (rodenticide) was applied in the vicinity of the waste pile area.

D-3a(3) Equipment and Procedures for Waste Pile Movement

The waste pile is moved by using a front-end loader and a dump truck. The dump truck is equipped with sides and a cover to ensure that the load will not overflow or be exposed to wind or precipitation during loading, unloading, and transport. One front-end loader is used on the pile to ensure that the liner is not punctured by the dump truck.

D-3b Waste Piles Without Free Liquids

Presently, the Tankopile Finishing Company does not manage a waste pile without free liquids, therefore, Sections D-3b, D-3b(1), D-3b(2), D-3b(3), and D-3b(4) are not applicable.

D-4 Surface Impoundments

Presently, the Tankopile Finishing Company does not manage a surface impoundment, therefore, Section D-4 is not applicable.

D-5 Incinerators

Presently, the Tankopile Finishing Company does not manage an incinerator, therefore, Section D-5 is not applicable.

SECTION E

GROUND WATER MONITORING SYSTEMS

The requirements for ground water monitoring are not applicable to a storage facility such as Tankopile Finishing Company, which stores containers and tanks and operates a waste pile (not intended for disposal).

SECTION F

PROCEDURES TO PREVENT HAZARDS

The information provided in this section is submitted in accordance with the requirements of 40 CFR Part 122.25(a)(4), (5),(6),(8), and (9). Other regulations addressed to complete this section include 40 CFR §264.14, §264.15, §264.17, §264.174, §264.194, and §264.254.

Tankopile Finishing Company will address the following subject areas (referenced above): general security provisions; inspection schedule; request for a waiver of preparedness and prevention requirements; spill prevention, containment, and countermeasures plan; and prevention of accidental ignition or reaction of ignitible, reactive, or incompatible wastes.

F-1 Security

F-1a Security Procedures and Equipment

In addition to the general security provisions of fencing, gates, and guards discussed below, several other features contribute to the safety and security of the facility. Ample lighting is provided throughout the site, and guards and operators are equipped with hand-held, two-way radios to report upset conditions immediately. In addition to the two-way portable radios carried by guards and operators, a base station for the public address system is located in the plant manager's office. An internal telephone system (with phones in most plant areas) is provided. The same telephone system is used for communications outside the plant.

Employees are required to show identification cards when reporting for work, and visitors and contractors entering the plant must sign a log sheet (Figure 25) and obtain visitor passes.

F-1a(1) 24-hour Surveillance System

Security at Tankopile Finishing Company is maintained by a staff of trained security guards, who primarily monitor entry and exit from the active portion of the facility and provide security measures within the plant premises.

The main entrance gate at the east end of the facility is operated by remote control from the guard house, which is occupied by two armed guards 24 hours a day, 7 days a week, except during plant shutdowns for holidays at which time the gates remain locked. Guards normally work an 8-hour shift with a crew of six guards per day. During each shift, one of the guards makes a walkthrough of the facility at scheduled intervals while the other remains in the guard house.

F-1a(2) Barrier and Means to Control Entry

TANKOPILE FINISHING COMPANY
ANYTOWN, RHODE ISLAND

Visitor/Contractor Entry Log Sheet

Date	Time		Name	Affiliation	Contact	Purpose of visit
	In	Out				

Figure 25. Log sheet.

-1a(2)(a) Barrier

Except for two company parking lots, the entire facility is enclosed within a 7-ft-high, chain-link fence topped by three strands of barbed wire. The fence has two gates; one located at the southwest end of the facility, which is locked at all times, and the other at the east end of the facility, which serves as the main entrance to the facility. In addition, a 12-ft-high, chain-link fence with two lockable gates was constructed around the container storage area to restrict unauthorized entry and to prevent drums from being washed downstream in the event of a minor flood.

F-1a(2)(b) Means to Control Entry

As discussed in Section F-1a(1), entry to the facility is controlled by two armed guards stationed at the main entrance gate. Employees are required to show identification cards when reporting for work, and visitors and contractors entering the plant must sign a log sheet and obtain visitor passes.

F-1a(3) Warning Signs

Signs which are legible from a distance of 25 feet are posted at all fence gates and several other fence locations around the active portion of the facility; these signs are visible from all angles of approach, and bear the legend "Danger - Unauthorized Personnel Keep Out." Also, "No Smoking" signs which are legible for a distance of 25 feet have been placed in the container storage area.

F-1b Waiver

The Tankopile Finishing Company does not request a waiver of the requirements stated in Part 264.14(a)(1) and (2) regarding injury to intruder and violation by intruder.

F-2 Inspection Schedule

F-2a General Inspection Requirements

The Tankopile Finishing Company conducts regular inspections of the facility for equipment malfunctions, structural deterioration, operator errors, and discharges that could cause or lead to the release of hazardous waste constituents and adversely affect the environment or threaten human health.

F-2a(1) Types of Problems

Table 10 presents the schedule for inspecting monitoring equipment, safety and emergency equipment, security devices, operating and structural equipment, the container storage area, the tank storage area, tanks (internally and externally), and the waste pile area. The items listed in the table are considered important because of their role in preventing, detecting, or responding to environmental or human health hazards. Provided with each item is a list of problems normally encountered.

F-2a(2) Frequency of Inspection

Also provided in Table 10 is a recommended frequency of inspection for each item.

TABLE 10. INSPECTION SCHEDULE

Area/equipment	Specific item	Types of problems	Frequency of inspection
Monitoring equipment	Liquid level transmitters (tanks)	Transmitter signal, electrical circuitry, power	Daily
	Conservation vents (tanks)	Spring adjustment or sticking	Daily
	Leachate detection, collection, and removal system (waste pile)	Groundwater collected, groundwater contaminated, sump pump failure, external evidence of malfunction	Daily
	Ground water table control system (waste pile)	Level of groundwater, external evidence of malfunction, sump pump failure	Daily
	Runoff collection and removal system (waste pile)	Groundwater collected, groundwater contaminated, sump pump failure, external evidence of malfunction	Daily
	Ground water table water meter (located in sump)	Clogging, malfunction of digital display, rotor sticking, wearing of gears	Daily
Safety and emergency equipment	Standard industrial absorbents (Sorb-All, Vermiculite, etc.)	Out of stock	Monthly/as needed
	Sandbags	Torn or worn	At use
	Sand	Out of stock	Monthly/as needed
	Absorbent boom		Monthly/as needed
	Absorbent pads	Out of stock	Monthly/as needed
	Straw	Out of stock	Monthly/as needed
	Submersible pump	Power, clogging	Monthly
	Flexible hoses with quick couple fittings	Cracks or holes, fittings stick	Monthly
	55-gallon drums (steel, stainless steel)	Corrosion, structural damage	Monthly
	Emergency shower and eyewash	Water pressure, leaking, drainage	Weekly
	Face shields and extra protective eyeglasses	Broken or dirty equipment	Monthly
	Disposable respirators	Out of stock	Monthly/as needed
	Chemical cartridge respirators with cartridges for organic vapors and acid gases; half- and full-face types	Spent chemical adsorbent, seals	Monthly/after each use
	Chest-mounted gas mask cannisters	Cannisters become exhausted	Monthly/after each use
	Self-contained breathing apparatus (SCBA)	Air quantity in reserve, air delivery system, moisture in tank (cold weather)	Monthly/after each use
	Portable sump pump	Power, clogging	Monthly
	Fire blankets	Dispensing	As used
	Fire extinguishers	Needs recharging	Monthly/after each use
	Fire alarm system	Power failure	Per NFPA
	Telephone system	Power failure	Per NFPA
	Public address (PA) system	Power failure, speakers	Per NFPA
	Generators	Fuel supply, spark plugs, oil	As used
	Emergency lighting system	Battery failure, lights	Per NFPA
	First aid equipment and supplies	Items out of stock or inoperative	As used
	Steam cleaner	Water supply, fuel supply	As used
	Protective clothing (impermeable full body coveralls, gloves, and foot coverings)	Holes, normal wear and tear	As used
	Decontamination facility (showers, dirty room, clean room)	Water pressure, leaking, drainage, upkeep	As used

(continued)

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TABLE 10 (continued)

Area/equipment	Specific item	Types of problems	Frequency of inspection
Security devices	Facility fence	Corrosion, damage to chain-link fence or barbed wire	Weekly
	East gate (main entrance)	Corrosion, damage to chain-link fence or barbed wire	Weekly
	West gate and lock	Corrosion, damage to chain-link fence or barbed wire, sticking or corroding lock	Weekly
	Container storage area fence	Corrosion, damage to chain-link fence or barbed wire	Weekly
	Container storage area gate and lock	Corrosion, damage to chain-link fence or barbed wire, sticking or corroding lock	Weekly
	Remote control to east gate	Transmitter or receiver; sticking of gate	Upon failure
	Two-way radios	Transmitter or receiver	Upon failure
Operating and structural equipment	Sump pumps (automatic)	Setting adjustment, power, clogging	Weekly
	Dikes	Cracks, deterioration	Weekly
	Bases or foundations	Erosion; uneven settlement; cracks and spalling in concrete pads, base rings and piers; deterioration of water seal between tank bottom and foundation, wet spots	Weekly Weekly Weekly
	Sump pump (manual)	Power, clogging	Weekly
	Ramps	Erosion, uneven settlement, cracks and spalling in concrete	Weekly
	Sump areas	Erosion, uneven settlement, cracks and spalling in concrete, wet spots	Weekly
	Tank structural supports	Concrete deterioration and cracking, corrosion of pipe supports	Weekly
	Piping to holding tanks	Loss of metal thickness, leaks, corrosion or deterioration	Weekly
	Holding tanks	Corrosion, discoloration, cracks, buckles, and bulges	Weekly
	Storage areas	Leaks, spills	daily
Container storage area	Container placement and stacking	Aisle space, height of stacks	Weekly
	Sealing of containers	Open lids	Weekly
	Labeling of containers	Improper identification, date missing	Weekly
	Containers	Corrosion, leakage, structural defects	Weekly
	Segregation of incompatible wastes	Storage of incompatible wastes in same area	Weekly
	Pallets	Damaged (e.g., broken wood, warping, nails missing)	Weekly
	Fence, gate and lock	Corrosion, damage to chain-link fence, sticking or corroding lock	Weekly
	Base or foundation	Cracks, spalling, uneven settlement, erosion, wet spots	Weekly
	Dikes	Cracks, deterioration	Weekly
	Sump area	Cracks, spalling, uneven settlement, erosion, wet spots	Weekly
	Sump pumps (automatic)	Setting adjustment, power, clogging	Weekly
	Debris and refuse	Clog sump pump, aesthetics, possible reaction with leaks	Weekly
	Ramps	Cracks, spalling, uneven settlement, erosion	Weekly
	Warning signs	Damaged	Weekly

(continued)

TABLE 10 (continued)

Area/equipment	Specific item	Types of problems	Frequency of inspection
Tank storage area and ancillary equipment	Dike	Cracks, deterioration	Weekly
	Base or foundation	Cracks, spalling, uneven settlement, erosion, wet spots	Weekly
	Sump pump (manual)	Power, clogging	Weekly
	Sump area	Cracks, spalling, uneven settlement, erosion, wet spots	Weekly
	Warning sign	Damaged	Weekly
	Pipes	Loss of metal thickness, leaks, corrosion or deterioration	Weekly
	Valves	Loss of metal thickness, leaks, corrosion or deterioration	Weekly
	Fittings	Loss of metal thickness, leaks, corrosion or deterioration	Weekly
	Overfill control valve (manual) and level indicator	Loss of metal thickness, leaks, corrosion or deterioration, sticking, damaged handle	Daily
Tank (externally)	Ladder	Damaged, structural stability	Weekly
	Foundation/structural supports	Cracks, spalling uneven settlement, erosion, wet [illegible]	Weekly
	Pipe connections	External corrosion, cracks, distortion	Weekly
	Protective coating	Rust spots, blisters, film lifting	Weekly
	Tank shell	Corrosion, discoloration, cracks, buckles, bulges	Weekly
	Tank roof	Malfunction of seals, blockage of water drains on roof, corrosion	Weekly
	Tank bottom	Corrosion, discoloration, cracks, buckles, bulges	Weekly
	Anchor bolts	Distortion, corrosion	Weekly
	Nozzles	Cracks, corrosion	Weekly
Tank (internally)	Tank roof	Malfunction of roof's seals, corrosion, loss of metal thickness	yearly
	Internal supports	Deterioration, depressions	yearly
	Tank shell	Corrosion of vapor space, and liquid level line, cracking, bulges, holes, loss of metal, thickness, seams	yearly
	Tank bottom	Corrosion pits, sprung seams, rivets, depressions bottom thickness, unevenness of bottom	yearly
	Plate joints	Cracking	yearly
	Nozzle connection joints	Cracking	yearly
	Glass lining	Cracking, bubbles	yearly
	Rivets	Tightness, corrosion	yearly
	Pipecoil support	Depressions	yearly
Waste pile area	Run-on diversion ditch	Obstructions to flow, bank erosion, loose riprap	Weekly
	Entrance road and guard rails	Loss of gravel, fugitive emissions, corrosion and tightness of guard rails	Weekly
	Runoff diversion canal and drain	Obstructions, drain clogged	Weekly
	Wind dispersal control system	Frequency of water application, dryness and slope of pile	Daily
	Foundation	Cracks or breaks	At installation
	Synthetic liner	Tears, holes, separation of layers, thin spots, cracks, shrinkage, hardness, excessive permeability, blisters	At installation
	Base	Erosion, exposed area to liner, depth	Weekly
	Liner seams	Tear, tightness of seam	At installation
	Joints	Tightness of connection	At installation

F-2b Specific Process Inspection Requirements

F-2b(1) Container Inspection

Inspections of the container storage area will be conducted per the inspection schedule provided in Table 10. Results of each inspection will be recorded on inspection log sheets entitled, "Operating and Structural Equipment Inspection Log Sheet," "Security Devices Inspection Log Sheet," and "Container Storage Area Inspection Log Sheet" (Supplement 1-B). Information requested on the log sheets, similar to that of log sheets for tanks, waste piles, etc., includes the inspector's name and title, date and time of inspection, item of inspection, typical problems encountered, status of the item, observations, and the date and nature of repairs and remedial action. Typical problems encountered with each item of inspection, included in the inspection schedule, are provided on the log sheet to serve as a reminder to the inspector and to ensure a complete inspection. The inspector is required to check the status of each item and indicate whether its condition is acceptable or unacceptable. Regardless of the status, observations are made as to the number of containers, aisle space, height of container stacking, inventory quantities, storage tank levels, observation of runoff in waste pile area, and more. If the status of a particular item is unacceptable, appropriate and complete information is recorded, including date and nature of repairs and remedial action.

F-2b(2) Tank Inspection

Tank inspections will be conducted per the inspection schedule provided in Table 10. Results of each inspection will be recorded on inspection log sheets entitled, "Monitoring Equipment Inspection Log Sheet," "Operating and Structural Equipment Inspection Log Sheet," "Tank Storage Area and Ancillary Equipment Inspection Log Sheet," "External Tank Inspection Log Sheet," and "Internal Tank Inspection Log Sheet" (Appendix). Upon completion of the inspection log sheets, they will be inserted in the inspection log three-ring binder previously discussed in Section F-2b(1).

F-2b(3) Waste Pile Inspection

During the installation of the waste pile liner system, strict quality assurance of the workmanship was part of standard installation procedure. The liner was inspected for uniformity, damage and imperfections. The waste pile inspections will be conducted per the inspection schedule provided in Table 10. Results of each inspection will be recorded on inspection log sheets entitled, "Monitoring Equipment Inspection Log Sheet," "Operating and Structural Equipment Inspection Log Sheet," and "Waste Pile Area Inspection Log Sheet." Upon completion of the inspection log sheets, they will be inserted in the inspection log three-ring binder previously discussed in Section F-2b(1).

F-2c Remedial Action

If inspections reveal that non-emergency maintenance is needed, they will be completed as soon as possible to preclude further damage and reduce the need for emergency repairs. If a hazard is imminent or has already occurred during the course of an inspection or any time between inspections, remedial action will be taken immediately. Tankopile Finishing Company personnel will notify the appropriate authorities per the Contingency Plan (see Section G) and initiate remedial actions. In the event of an emergency involving the release of hazardous constituents to the environment, efforts will be directed towards containing the hazard, removing it, and subsequently decontaminating the affected area. Refer to the Contingency Plan for further details.

F-2d Inspection Log

An inspection log is maintained for each calendar year in a three-ring binder that is subdivided by sections for each area/equipment. After an inspection, each log sheet is filed in the binder according to area/equipment, which provides a case history of a particular item. The inspection log notebook is always kept with the inspection schedule in the Environmental Engineer's office. As required, records of inspections are kept for at least 3 years from the date of inspection. A copy of the inspection log sheets may be found in the Appendix.

F-3 Waiver of Preparedness and Prevention Requirements

The applicant does not wish to request a waiver of the preparedness and prevention requirements under 40 CFR §264 Subpart C. Requirements of this Subpart are primarily addressed in Section D, Section F, and Section G of this application.

F-3a Equipment Requirements

Internal and external communications, emergency equipment, and fire control equipment are discussed in Section F and Section G.

F-3b Aisle Space Requirements

Aisle space requirements are addressed in Sections D-1a(2), F-5c, and G.

F-4 Preventive Procedures, Structures, and Equipment

F-4a Loading/Unloading Operations

Loading operations at the facility, other than removal operations at the container, tank, and waste pile storage areas, take place in the processing area. Except for tank storage wastes, wastes generated in the processing area are collected in hoppers and loaded into drums or front-end loader for transport to the appropriate storage area. During loading operations spills are unlikely; however, in the event of an accident the material will be contained with sandbags, standard industrial absorbents, absorbent boom and pads, or dirt. Contaminated materials will be contractor-hauled to a permitted hazardous waste landfill, and affected areas of the facility and equipment will be decontaminated.

The only areas that involve unloading operations at Tankopile Finishing Company are the container storage area and the waste pile area. Wastes stored in the tank area are piped directly from the processing area to the storage tanks.

Several precautions have been taken to reduce the potential for hazards during unloading operations in the container storage area. First, three ramps were designed and constructed to facilitate the smooth and accessible movement of a forklift truck in and out of each of the storage area sections (Figure 18). Second, at least 5 feet of aisle space is maintained at all times. Third, pallets are used in the transport of drum containers.

Unloading operations in the waste pile area involve the transport of wastes from the processing area to the waste pile via front-end loader or dump truck. The front-end loader is equipped with a cover to prevent hazardous waste dispersal. Entrance to the waste pile area is by a gravel road, which slopes away from the pile to prevent run-on from entering the waste pile area (Figure 24). At the intersection of the road entrance and the diversion canal, a guard rail was installed on both sides of the road to prevent the front-end loader from driving into the canal and spilling the waste. The front-end loader is driven up the access ramp where its contents are emptied onto the waste pile.

F-4b Runoff

Runoff from the container storage area and waste pile area is collected and automatically pumped to three holding tanks located just east of the container storage area (Figure 4). Runoff from Storage Area A is diverted to Holding Tank A, runoff from Storage Area B and the waste pile area is collected in Holding Tank B, and runoff from Storage Area C is diverted to Holding Tank C. Runoff contained in Holding Tanks A and C is discharged to the municipal sewer system if no leaks or spills from containers are detected during inspection. Contents of Holding Tank B, which consists of runoff from Storage Area B and runoff and leachate from the waste pile area, will be examined by laboratory analyses and either discharged to the sewer system (if determined not to be a hazardous waste) or drummed and stored onsite for later disposal at a facility authorized to accept the waste types. In the event that a spill or leak is detected in Storage Areas A or C, runoff collected in their respective holding tanks will be managed similarly to waste received in Holding Tank B discussed above.

Runoff from all other areas of the facility drains directly into the municipal sewer system.

Because the Tankopile Finishing Company is located in a 100-year floodplain, provisions have been made to minimize flooding, and emergency procedures have been established for the possible but unlikely occurrence of a flood. These procedures are discussed in the Emergency Procedures section of the Contingency Plan (Section G).

F-4c Water Supplies

Ground water contamination is prevented by eliminating the discharge of hazardous materials onto the unprotected ground. The container storage area is constructed of a concrete base, dikes, sump areas, sump pumps, and holding tanks to contain leaks, spills, and precipitation. The waste pile area is also designed and constructed to prevent water supply contamination. Refer to Section D-3a for a complete description of the design and construction of the waste pile area, including a leachate collection system, wind dispersal control system, and runoff and run-on collection system.

F-4d Equipment and Power Failure

In the event of a brief power interruption, emergency generators will be started to maintain process operations, and the emergency lighting system will activate automatically supplying lighting to all facility buildings and property. If there is a prolonged power outage, the waste feed lines to the tank storage area will be manually shut off and all plant operations will be shut down. After shutdown, maintenance personnel will check for malfunction and equipment failures, and the Anytown Power and Light will be contacted immediately for assistance. Refer to Emergency Procedures in the Contingency Plan for more details.

F-4e Personnel Protection Equipment

General information on the major chemical components of the wastes in the container, tank, and waste pile areas is provided in the Appendix under General Information and Hazardous Characteristics of Wastes. The sheets present information on various chemicals regarding toxicity, fire and explosion hazards, protective equipment recommendations, and first aid. Available protective equipment is presented under Emergency Equipment and Provisions of the Contingency Plan (see Section G). Use of protective equipment is covered in the initial and annual Personnel Training Programs (see Section H), which satisfies the Occupational Safety and Health Standards of 29 CFR Part 1910 Subpart I - Personal Protective Equipment.

F-5 Prevention of Reaction of Ignitable, Reactive, and Incompatible Wastes

F-5a Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Wastes

The container storage area is the only area on the facility property where ignitable wastes are stored. No reactive wastes are stored at the facility. The containers, as discussed in Section D-1a(1), are compatible with the contained wastes; therefore, the only source of ignition is external to the containers. To prevent a possible source of external ignition, drums containing ignitable wastes are painted white to reflect solar heat and signs are placed in the container storage area clearly marked with the legends, "No Smoking" and "Danger - Unauthorized Personnel Keep Out." Sparkproof tools (brass hammers, wrenches, etc.) are used on all containers and tanks storing ignitable materials.

F-5b General Precautions for Handling Ignitable or Reactive Wastes or Accidentally Mixing Incompatible Wastes

General precautions for handling ignitable or reactive wastes were discussed above. Incompatible wastes are not mixed at Tankopile Finishing Company.

F-5c Management of Ignitable or Reactive Wastes in Containers

Precautions taken in the container storage area to prevent accidental fire and explosion include the proper storage of containers (e.g., stacking, aisle space, and labeling and sealing of containers), dikes, sump areas and sump pumps, and appropriate warning signs.

Prior to storage, each container is sealed and labeled. This prevents precipitation from entering the drum, and identifies the contents of the container and the date wastes were generated. Containers are stored on pallets to minimize contact with precipitation, leaks, or spills, and they are never stacked more than three containers high. A minimum of 5 ft is maintained in the aisles to allow access for a forklift without risk of damaging containers by scraping or puncturing.

The container storage area is located 700 ft from the closest company property line (Figure 4), which is in compliance with the National Fire Code Standards for outdoor storage of containers holding ignitable or reactive wastes.

F-5d Management of Incompatible Wastes in Containers

Drums used at Tankopile Finishing Company are color-coded white for vinyl acetate and chloride sludges, yellow for pickle liquor sludges, and blue for metal grindings. This system prevents an operator from placing waste in a container that previously held an incompatible waste.

Incompatible wastes stored in the container storage area are separated by 6-in.-high curbs, and each of the three storage area sections has a separate sump area, sump pump, and holding tank to prevent mixing of the wastes.

F-5e Management of Ignitable or Reactive Wastes in Tanks

Hazardous waste properties of storage tank waste materials generated from the finishing operations at the Tankopile Finishing Company are corrosivity and toxicity. No ignitable or reactive waste materials are stored in the tanks.

The location of the waste storage tanks complies with the buffer zone requirements for stable liquids (operating pressure 2.5 psig or less) contained in the National Fire

Protection Association's 1981 "Flammable and Combustible Liquids Code" for vertical tanks with emergency relief venting. The storage tanks are designed to relieve pressures in excess of 0.22 psig. The facility provides protection for exposures by location within the jurisdiction of the Anytown Fire Department and by operation of its own fire brigade.

F-5f Management of Incompatible Waste in Tanks

Waste materials stored in the tank storage area are incompatible. When 1,1,1-trichloroethane comes in contact with acid or acid fumes, highly toxic chloride fumes are generated. The tanks therefore have separate piping systems.

Pressure safety valves were installed on both tanks to relieve pressure buildup and prevent a possible explosion. Furthermore, regular inspections as discussed in section F-2b(2) will be conducted to ensure safe operations.

F-5g Management of Ignitable or Reactive Wastes in Waste Piles

Ignitable or reactive wastes are not stored in the waste pile at Tankopile Finishing Company.

F-5h Management of Incompatible Wastes in Waste Piles

Incompatible wastes are not stored in the waste pile at Tankopile Finishing Company.

SECTION G

CONTINGENCY PLAN

The information contained herein is submitted in accordance with the requirements for a Contingency Plan, as contained in 40CFR§122.25(a)(7) and §264 Subpart D.

Contingency Plan [40 CFR 122.25(a)(7)]

The intent of §264, Subpart D (Contingency Plan and Emergency Procedures), of RCRA is to ensure that facilities that treat, store, or dispose of hazardous wastes have established the necessary planned procedures to follow in the event an emergency situation should arise.

The intent of the requirements under 40 CFR §264, Subpart C (Preparedness and Prevention), which was described in Section F, is to ensure that the facility is properly designed and equipped to minimize the possibility of accidents and prevent the occurrence of emergency situations. The requirements under 40 CFR §264 Subpart D address the actions that are to be taken if an accident should occur.

G-1 General Information

This contingency plan is for the Tankopile Finishing Company, Inc., located at 3100 West 11th Street, Anytown, Rhode Island 02881. Tankopile is primarily a manufacturer of metal automotive parts (i.e., body parts, hubs, and trim) and household appliance housings and parts. Mary P. Jones is the owner and operator of the facility. Ms. Jones may be reached at (401) 555-6789 from 9 a.m. to 5 p.m. on weekdays. Mr. John Smith, Environmental Engineer, is the primary emergency coordinator at the facility and may be reached at (401) 555-3219 from 9 a.m. to 5 p.m. on weekdays. Other emergency coordinators may be reached at this telephone extension during other hours.

Tankopile stores hazardous waste in three locations. A waste pile with a maximum storage of 50 yd^2 is used to store metal hydroxide wastes. Two 7,500-gallon tanks are used to store 1,1,1-trichloroethane waste solvent and spent pickle liquor. A container storage area has an estimated maximum storage capacity of 100 drums. A general site plan and a full description of the facility is contained in Section B. A description of the wastes is contained in Section C. Included in the copies of the Contingency Plan provided to emergency organizations, these two sections (B and C) have been added as Appendices.

-2 Emergency Coordinators

If an emergency situation develops at the facility, the discoverer should contact an emergency coordinator listed in Table 11. John Smith, primary Emergency Coordinator, should be contacted first, and if he is not available, the others should be called (in the order listed) until someone is reached. The primary Emergency Coordinator and alternates have complete authority to commit all resources of the company in the event of an emergency. Table 12 lists organizations that could possibly be contacted by the Emergency Coordinator in the event of an emergency.

TABLE 11

EMERGENCY COORDINATORS

Name	Title	Home address	Work phone No.	Home phone No.
John Smith	Environmental Engineer	453 Elm St.	Ext.3219	221-2932
Joseph Williams	Plant Manager	911 6th St.	Ext.3225	862-3801
Albert Brown	Vice President, Operations	1101 Main St.	Ext.3220	921-4410

G-3 Implementation of the Contingency Plan

The decision to implement the contingency plan depends upon whether or not an imminent or actual incident could threaten human health or the environment. The purpose of this section is to provide guidance to the emergency coordinator in making this decision by providing decision-making criteria.

TABLE 12

EMERGENCY CONTACTS

Emergency	Organization/agency	Emergency No.
Injury	Anytown Hospital	911
	Washington County Hospital	Ambulance - 863-4800 Info. - 863-3232
	Rhode Island Medical College	821-8305
	Poison Control Center	724-5050
Fire/explosion	Washington County Fire Dept.	798-6818
	Anytown Fire Dept.	722-5351
Hazardous material spill or release	Anytown Fire Dept.	722-5351
	Washington County Fire Dept.	798-6818
If spill reaches navigable water	U.S. EPA Region I Response Center	24-hr. emergency No. - 617/472-3815
	Rhode Island Emergency Management	401/702-4895
	National Response Center	800/424-8802
Natural disaster	Washington County Emergency Management Agency*	911 or 724-4444
Potential flood	Army Corp of Engineers Engineer	401/704-4362
All of the above	Rhode Island Emergency Management Agency*	24-hr. No. - 401/826-4739
	American Red Cross	722-1821

* This agency may also be contacted in any emergency event if necessary. They will coordinate the proper agencies/organizations as needed.

The contingency plan will be implemented in the following situations:

1. Fire and/or Explosion
   a. A fire causes the release of toxic fumes.
   b. The fire spreads and could possibly ignite materials at other locations onsite or cou cause heat-induced explosions.
   c. The fire could possibly spread to offsite areas.
   d. Use of water or water and chemical fire suppressant could result in contaminated runoff.
   e. An imminent danger exists that an explosion could occur, causing a safety hazard because of flying fragments or shock waves.
   f. An imminent danger exists that an explosion could ignite other hazardous waste at the facility.
   g. An imminent danger exists that an explosion could result in release of toxic material.
   h. An explosion has occurred.
2. Spills or Material Release
   a. The spill could result in release of flammable liquids or vapors, thus causing a fire or gas explosion hazard.
   b. The spill could cause the release of toxic liquids or fumes.
   c. The spill can be contained onsite, but the potential exists for ground water contamination.
   d. The spill cannot be contained onsite, resulting in offsite soil contamination and/or ground or surface water pollution.

3. Floods

   a. The potential exists for surface water contamination.

G-4 Emergency Response Procedures

G-4a Notification [40 CFR 264.56(a)]

In the event of an emergency situation the emergency coordinator will be notified first; subsequently, all facility personnel, appropriate federal, state, or local agencies, and fire or police departments will also be notified. See Figures 26 and 27.

G-4b Identification of Hazardous Wastes [40 CFR 264.56(b)]

The emergency coordinator will immediately identify the character, exact source, amount and area extent of the release. The initial identification method will be to utilize visual analysis of the material and location of the release. The containers are color coded as to their contents and are in distinct separate locations. The tanks and piping from the process area to the tanks are labeled to identify whether they hold waste pickle liquor or trichloroethane. The waste pile area would only have metal hydroxide sludge. If for some reason the released material cannot be identified, visual samples will be taken for chemical analysis.

G-4c Assessment [40 CFR 264.56(c) and (d)]

The emergency coordinator will assess possible hazards, both direct and indirect, to human health or the environment.

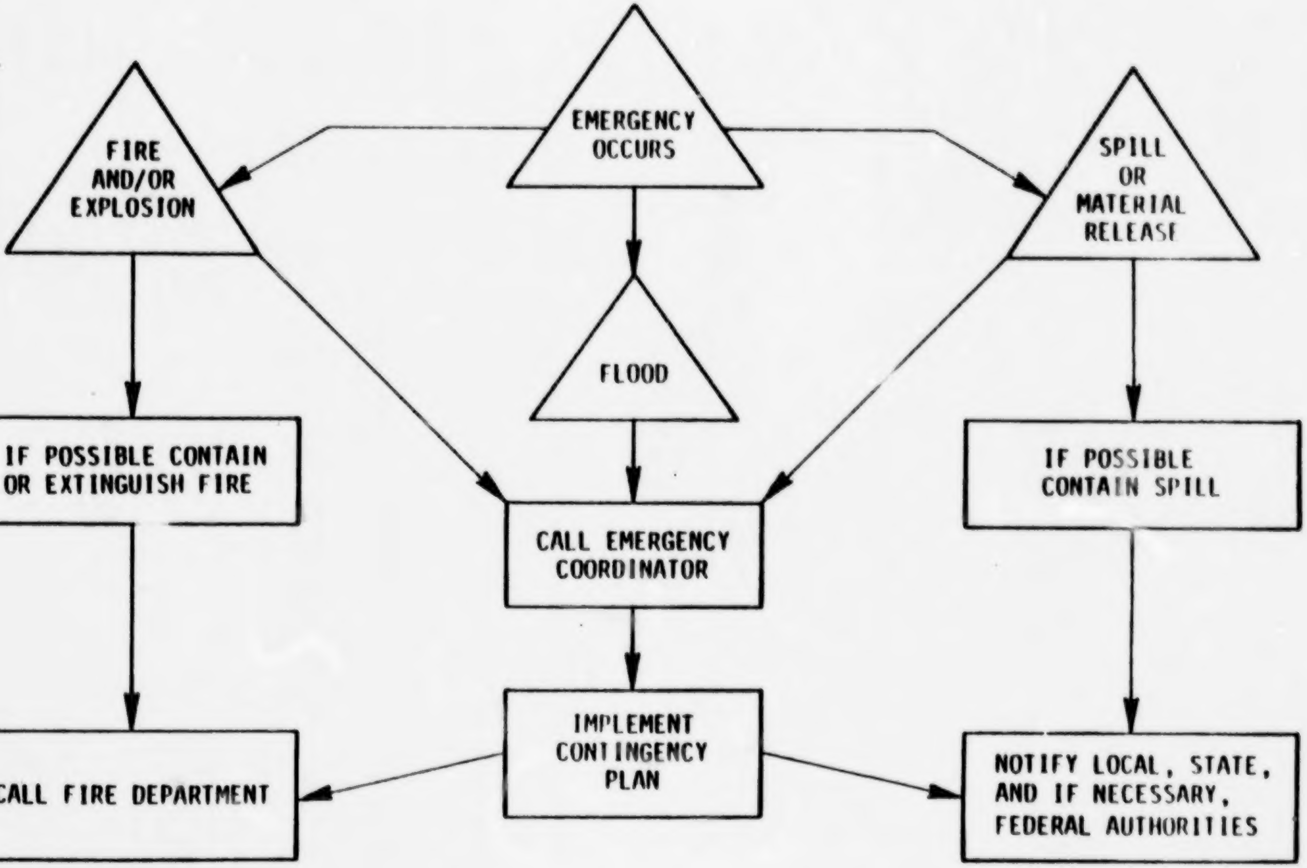
EMERGENCY OCCURS
FIRE AND/OR EXPLOSION
FLOOD
SPILL OR MATERIAL RELEASE
IF POSSIBLE CONTAIN OR EXTINGUISH FIRE
CALL EMERGENCY COORDINATOR
IF POSSIBLE CONTAIN SPILL
IMPLEMENT CONTINGENCY PLAN
CALL FIRE DEPARTMENT
NOTIFY LOCAL, STATE, AND IF NECESSARY, FEDERAL AUTHORITIES

Figure 26. Overview of emergency plan of action.

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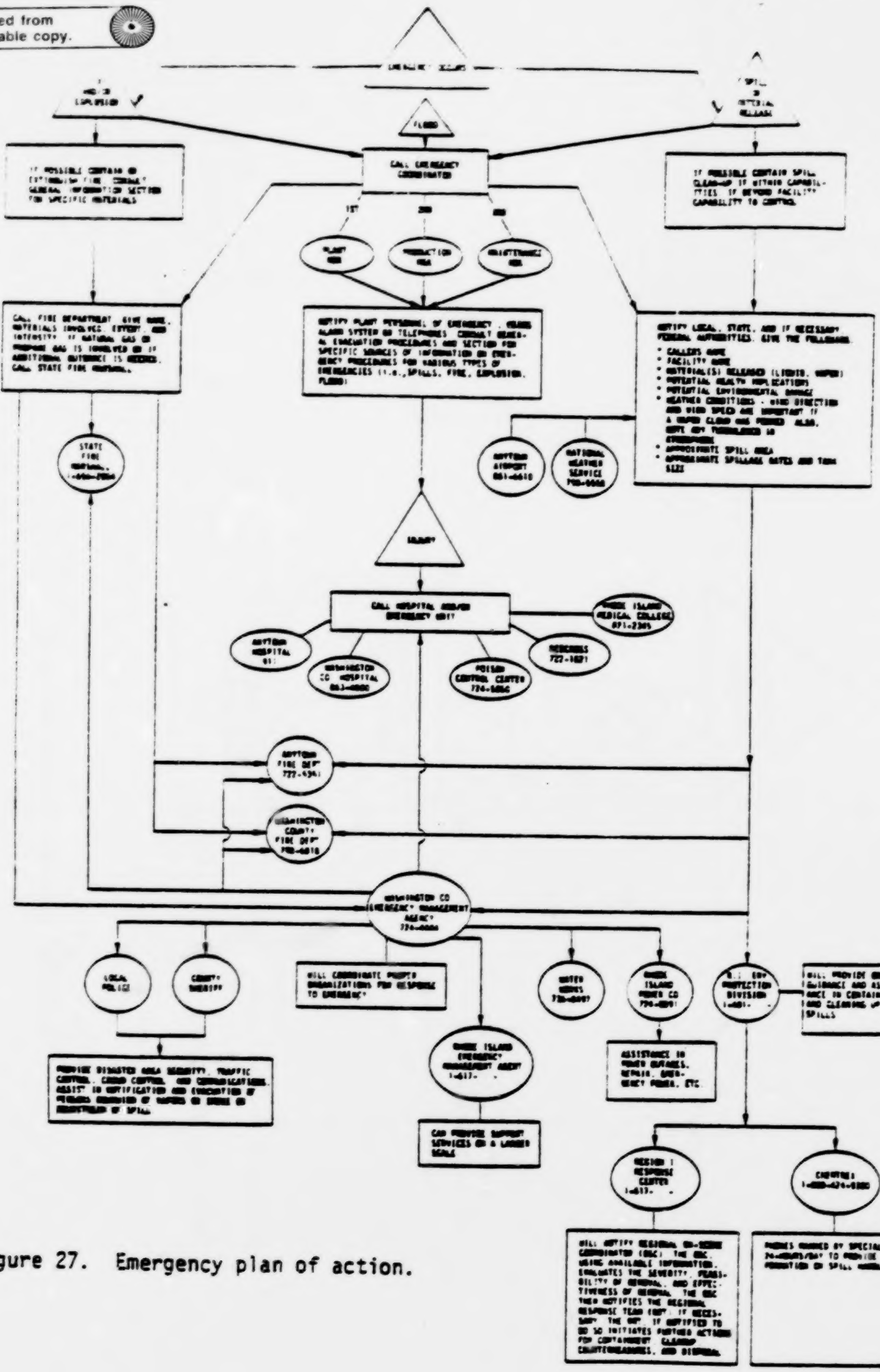
EMERGENCY OCCURS
FIRE OR EXPLOSION
FLOOD
SPILL OR MATERIAL RELEASE
CALL EMERGENCY COORDINATOR
1ST
2ND
3RD
PLANT MGR
PRODUCTION MGR
MAINTENANCE MGR
STATE FIRE MARSHAL
ANYTOWN AIRPORT
NATIONAL WEATHER SERVICE
INJURY
CALL HOSPITAL AND/OR EMERGENCY UNIT
ANYTOWN HOSPITAL
WASHINGTON CO HOSPITAL
POISON CONTROL CENTER
REDCROSS 727-1621
RHODE ISLAND MEDICAL COLLEGE
ANYTOWN FIRE DEPT 722-4341
WASHINGTON COUNTY FIRE DEPT
WASHINGTON CO EMERGENCY MANAGEMENT AGENCY
LOCAL POLICE
COUNTY SHERIFF
WATER WORKS
RHODE ISLAND POWER CO
R.I. ENV PROTECTION DIVISION 1-401-
RHODE ISLAND EMERGENCY MANAGEMENT AGENCY 1-617-
REGION I RESPONSE CENTER 1-617-
CHEMTREC 1-800-424-9300

IF POSSIBLE CONTAIN OR EXTINGUISH FIRE. CONSULT GENERAL INFORMATION SECTION FOR SPECIFIC MATERIALS

IF POSSIBLE CONTAIN SPILL. CLEAN-UP IF WITHIN CAPABILITIES. IF BEYOND FACILITY CAPABILITY TO CONTROL

CALL FIRE DEPARTMENT. GIVE NAME, MATERIALS INVOLVED, EXTENT, AND INTENSITY. IF NATURAL GAS OR PROPANE GAS IS INVOLVED OR IF ADDITIONAL GUIDANCE IS NEEDED, CALL STATE FIRE MARSHAL.

NOTIFY PLANT PERSONNEL OF EMERGENCY, USING ALARM SYSTEM OR TELEPHONES. CONSULT GENERAL EVACUATION PROCEDURES AND SECTION FOR SPECIFIC SOURCES OF INFORMATION ON EMERGENCY PROCEDURES FOR VARIOUS TYPES OF EMERGENCIES (i.e., SPILLS, FIRE, EXPLOSION, FLOOD)

NOTIFY LOCAL, STATE, AND IF NECESSARY FEDERAL AUTHORITIES. GIVE THE FOLLOWING:

- CALLERS NAME
- FACILITY NAME
- MATERIAL(S) RELEASED (LIQUID, VAPOR)
- POTENTIAL HEALTH IMPLICATIONS
- POTENTIAL ENVIRONMENTAL DAMAGE
- WEATHER CONDITIONS - WIND DIRECTION AND WIND SPEED ARE IMPORTANT IF A VAPOR CLOUD HAS FORMED. ALSO, NOTE ANY TURBULENCE IN ATMOSPHERE
- APPROXIMATE SPILL AREA
- APPROXIMATE SPILLAGE RATES AND TANK SIZE

WILL COORDINATE PROPER ORGANIZATIONS FOR RESPONSE TO EMERGENCY

WILL PROVIDE ONSITE GUIDANCE AND ASSISTANCE IN CONTAINING AND CLEANING UP SPILLS

PROVIDE DISASTER AREA SECURITY, TRAFFIC CONTROL, CROWD CONTROL, AND COMMUNICATIONS. ASSIST IN NOTIFICATION AND EVACUATION OF PERSONS ENDANGERED BY VAPORS OR SMOKE OR DOWNSTREAM OF SPILL

CAN PROVIDE SUPPORT SERVICES ON A LARGER SCALE

ASSISTANCE IN POWER OUTAGES, REPAIR, EMERGENCY POWER, ETC.

WILL NOTIFY REGIONAL ON-SCENE COORDINATOR (OSC). THE OSC, USING AVAILABLE INFORMATION, EVALUATES THE SEVERITY, FEASIBILITY OF REMOVAL, AND EFFECTIVENESS OF REMOVAL. THE OSC THEN NOTIFIES THE REGIONAL RESPONSE TEAM (RRT), IF NECESSARY. THE RRT, IF NOTIFIED TO DO SO INITIATES FURTHER ACTIONS FOR CONTAINMENT, CLEANUP COUNTERMEASURES, AND DISPOSAL.

PHONES MANNED BY SPECIALISTS 24-HOURS/DAY TO PROVIDE INFORMATION ON SPILL HANDLING

Figure 27. Emergency plan of action.

G-4d Control Procedures [40 CFR 264.52(a)]

Potential accidents fall under three general classifications: (1) fire and/or explosions, (2) spills or material release, (3) floods. Natural disasters such as earthquakes or hurricanes are assumed to fall into one of these three classifications. An overview of the emergency plan of action is outlined in Figure 26. Figure 27 is a more detailed emergency plan of action, including phone numbers.

Fire and/or Explosion

The storage tank, container, and waste pile areas can be easily accessed by fire-fighting and other emergency vehicles and equipment. A paved blacktop road, about 25 ft in width, passes within 100 ft of each of these areas. This road is kept clear at all times.

A company fire brigade will be on standby during all general plant emergencies. During times of power failure or severe weather, fire protection personnel will be assigned to protect personnel and property. If a fire should break out, concentration will be placed on preventing the fire from spreading to nearby areas. The fire-fighting effort will be carried out by the fire brigade until outside assistance has arrived.

The following actions will be taken in the areas affected by the fire or explosion:

1. Fire doors in buildings will be closed.
2. Hazardous work in all areas will be shut down immediately.
3. All feed lines and additional equipment will be shut down, as necessary and practical.
4. The Emergency Coordinator will be contacted (See Table 10.)
5. The area will be cleared of all personnel not actively involved in fighting the fire. These persons are to report to the designated rally points for accountability. Rally points are designated in Figure 28. All persons in Section 1 on Figure 28 proceed to Rally Point 1; those in Section 2 to Rally Point 2.
6. All injured persons will be removed, and medical treatment will be administered by qualified personnel.

Because fire is always a potential hazard in spills of flammable materials, possible sources of ignition have been eliminated. Vehicular traffic and hazardous work in the area will cease until the spill is contained and safety is restored. If spilled materials are flammable, the fire brigade will respond with foam equipment and hoses. Flushing with large quantities of water or foaming of the spill will be performed if advised by the fire brigade chief.

If a highly flammable material is released (e.g., propane or natural gas), all persons within at least a quarter-mile radius of the release will be notified. All ignition sources within this area will be eliminated. Use of motor vehicles within this area will be restricted or eliminated to avoid ignition of the vapor, which can cause a flashback to the source and an initial explosion of fire of wide

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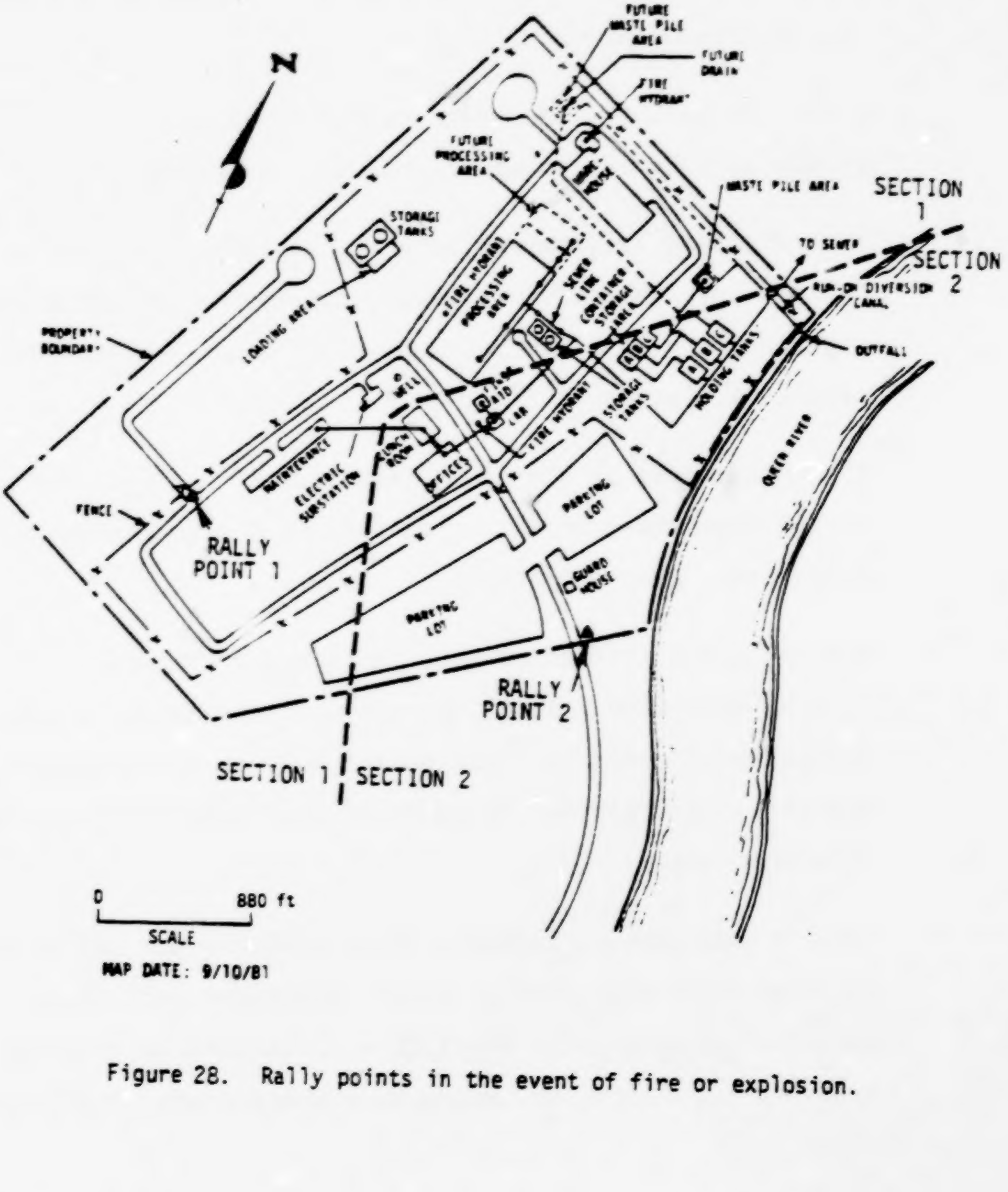

N
PROPERTY BOUNDARY
FUTURE WASTE PILE AREA
FUTURE DRAIN
FIRE HYDRANT
FUTURE PROCESSING AREA
STORAGE TANKS
WASTE PILE AREA
SECTION 1
SECTION 2
TO SEWER
RUN-ON DIVERSION CANAL
OUTFALL
LOADING AREA
FIRE HYDRANT
PROCESSING AREA
SEWER LINE
CONTAINER STORAGE AREA
HOLDING TANKS
STORAGE TANKS
FIRE HYDRANT
WELL
FIRST AID
LAB
MAINTENANCE
ELECTRIC SUBSTATION
LUNCH ROOM
OFFICES
PARKING LOT
GUARD HOUSE
PARKING LOT
QUEEN RIVER
FENCE
RALLY POINT 1
RALLY POINT 2
SECTION 1
SECTION 2
0
880 ft
SCALE
MAP DATE: 9/10/81

Figure 28. Rally points in the event of fire or explosion.

dimensions. If the chances of an impending explosion are high, the entire area within a 2000-ft radius of the source will be evacuated.

If a fire is involved and is concentrated at the source, people will be evacuated up to a half-mile downwind.

Fire fighting will not be done at the risk of injury to the persons involved; however, early containment of fires can significantly decrease total damage. Notification procedures are given in Figure 27.

The guard house or the plant receptionist will not be called unless absolutely necessary so that they remain free to handle only emergency calls.

Area or plant evacuation will be necessary in case of major fire or explosion. Specifics are outlined under general evacuation procedures. All personnel have been trained in evacuation procedures and means of exit from their respective work areas.

Until evacuation is signaled, personnel who are not in an affected area will stay in their respective work areas. Contract personnel and visitors will be cleared from the area and instructed to report to a guard house or office area.

The fire brigade chief will be responsible for all fire fighting efforts until outside help arrives. The fire brigade chief is always the lead shift foreman. Supervisors of unaffected areas will stay with their personnel and be ready to evacuate and account for the persons under their supervision.

An "all clear" signal will be given when the fire has been extinguished and the safety of personnel is no longer endangered. The fire brigade chief will determine when the emergency has passed and consult with the Emergency Coordinator before the "all clear" signal is given. All emergency equipment used in the emergency must be cleaned and fit for use prior to resumption of plant operation in the affected areas.

Spills or Material Release

In the event of a major emergency involving a chemical spill, the following general procedures will be used for rapid and safe response and control of the situation. Emergency contacts found in Figure 27 provide a quick-reference guideline to follow in the event of a major spill.

If an employee discovers a chemical spill or process upset resulting in a vapor release, he or she will immediately report it to the area supervisor.

The area supervisor will contact the designated Emergency Coordinator at the time of the incident. When contacted, the designated Emergency Coordinator will obtain information pertaining to the following:

1. The material spilled or released
2. Location of the release or spillage of hazardous material
3. An estimate of quantity released and the rate at which it is being released
4. The direction in which the spill or vapor or smoke release is heading
5. Any injuries involved
6. Fire and/or explosion or possibility of these events
7. The area and materials involved and the intensity of the fire or explosion.

This information will help the Emergency Coordinator to assess the magnitude and potential seriousness of the spill or release. If the accident is determined to lie within the company's emergency response capabilities, the Emergency Coordinator will contact and deploy the necessary inplant personnel. If the accident is beyond plant capabilities, the Emergency Coordinator will contact the appropriate agencies. A list of agencies and phone numbers can be found in Table 12.

The initial response to any emergency will be to protect human health and safety, and then the environment. Identification, containment, treatment, and disposal assessment will be the secondary response.

In the event of a leak or spill in the tank area, all feed lines to the storage tanks will be closed. The dike surrounding the tank storage area has the capacity to hold the largest tank and any rainfall. Immediately after the spill is detected, a local contractor will be summoned to remove any standing liquids and haul the spilled material to a facility approved to handle that particular waste.

If for some reason a chemical spill is not contained within a dike or sump area, an area of isolation will be established around the spill. The size of the area will generally depend on the size of the spill and the materials involved. If the spill is large and involves a tank or a pipeline rupture, an initial isolation of at least 100 ft in all directions will be used. Small spills or leaks from a tank or pipe will require evacuation of at least 50 ft in all directions to allow cleanup and repair and to prevent exposure. When any spill occurs, only those persons involved in overseeing or performing emergency operations will be allowed within the designated hazard area. If possible the area will be roped or otherwise blocked off.

If the spill results in the formation of a toxic vapor cloud (by reaction with surrounding materials or by outbreak of fire) and its release (due to high vapor pressures under ambient conditions), further evacuation will be enforced. An area at least 500 ft wide and 1000 ft long will be evacuated downwind if volatile materials are spilled.

Because the distance to the closest urban area is about 5 miles, it is unlikely that evacuation of its population will be necessary in the event of a release of toxic material. Industrial areas within a mile of the plant will be notified, however, if a large quantity of spilled material ignites. Because winds in the area tend to vary, the quickest and most accurate assessment of meteorological conditions is accomplished by calling the National Weather Service at 798-5558 or Anytown Airport at 861-6610.

If the control and cleanup of a spill, release, or fire is within the capabilities of company personnel and local response teams, the Rhode Island Department of Environmental Management or the National Response Center will not be notified unless one of the following occurs:

- A spill discharges to the Queen River and the quantity of hazardous material spilled is equal to or greater than the reportable quantity specified under 40 CFR Part 117.
- One thousand gallons or more of oil is spilled in a single event. If a lesser quantity has been spilled but has entered a storm sewer leading to the Queen River, it is advisable to contact local and state authorities for assistance if it is not possible to intercept the spill at the outfall or prevent the oil slick from moving downstream.
- The spill involves other hazardous materials not listed but used at the plant if they pose an actual or potential hazard to life or property.

As called for in regulations developed under the Comprehensive Environmental Liability and Compensation Act of 1980 (Superfund), our practice is to report a spill of a pound or more of any hazardous material for which a reportable quantity has not been established and which is listed under the Solid Waste Disposal Act, Clean Air Act, Clean Water Act, or TSCA. We also follow the same practice for any substances not listed in the Acts noted above but which can be classified as a hazardous waste under RCRA.

If the Emergency Coordinator determines that the company is unable to handle the emergency, then local, state, and Federal authorities will be notified of the situation. Evacuation of all potentially affected plant areas will be initiated as soon as possible.

The following guidelines will be used in case of an accidental episode involving waste materials. These are general guidelines, and circumstances may dictate some alterations to these procedures.

Most waste spills and leaks are easily contained within the dikes and sumps provided in the tank area. Small spills occurring in a diked area are flushed with plenty of water, to the sump provided in that area. If necessary, a portable sump pump is used to pump the diluted waste material into 55-gallon drums. Procedures for handling large spills were discussed earlier in this section.

For all large spills or serious leaks the following guidelines will be followed as closely as possible:

1. If a leak develops or a spill occurs from a waste storage tank, pipeline pump, etc., the person discovering the discharge will leave the immediate area and contact the Emergency Coordinator. The Emergency Coordinator will obtain the following information:

   a. Person(s) injured and seriousness of injury.

   b. Location of the spill or leak, material involved, and source (tank, pipeline, etc.).

   c. The approximate amount spilled, an estimate of the liquid and/or gas discharge rate, and the direction the liquid flow or gaseous cloud is moving.

   d. Whether or not a fire is involved.

2. Next, the Emergency Coordinator will:

   a. Initiate evacuation of the hazard area. For small spills or leaks, isolate at least 50 ft in all directions. For large spills, initially isolate at least 100 ft in all directions and keep all persons upwind of spill.

   b. Obtain medical attention for any injured persons. It may be helpful to instruct the caller in initial first aid procedures. Then call the hospital.

   c. Call the fire department if a fire is involved that cannot be extinguished by plant personnel. Fight small fires with dry chemicals, CO_2, or foam, and large fires with water spray, fog, or foam. Keep heat-exposed containers cooled with water spray and remove them from the fire if possible. IF A RISING SOUND COMES FROM A VENTING DEVICE OR THE TANK BEGINS TO DISCOLOR, WITHDRAW FROM THE AREA IMMEDIATELY.

d. Dispatch emergency personnel to the site to take the appropriate action.

e. Contact the proper authorities (Figure 27 and Table 11) if the spill or release is large. Contact local authorities first so that, if necessary, downstream water users and/or persons downwind of the vapor can be notified and, if necessary, evacuated. If a large spill occurs, the initial evacuation area downwind should be 0.2 mile long (≅1000 ft) by 0.1 mile wide (≅500 ft). If a tank containing waste becomes involved in a fire, isolate an area ½ mile in all directions.

3. Cleanup personnel will:

   a. Make sure all unnecessary persons are removed from the hazard area.

   b. Put on protective clothing and equipment.

   c. If the flammable waste is involved, remove all ignition sources, and use spark and explosion proof equipment and clothing in containment and cleanup.

   d. If possible try to stop the leak. Special materials will be kept on hand for temporary repairs.

   e. Remove all surrounding materials that could be especially reactive with materials in the waste. Determine the major components in the waste at the time of the spill.

   f. Use absorbent pads, booms, earth, sandbags, sand, and other inert materials to contain, divert and clean up a spill if it has not been contained by a dike or sump. Most spills contained within the dike or sump can be pumped back into the appropriate storage tank or drum.

   g. If wastes reach a storm sewer, try to dam the outfall to the Queen River by using sand, earth, sandbags, etc. If this is done, dilute wastes in the storm sewer with large quantities of water and pump this material out into a temporary holding tank or drums as soon as possible. If a spill enters the river or has entered a storm drain, use absorbent booms and sweeps around the outfall to contain and absorb water-insoluble organics.

h. Place all containment and cleanup materials in drums for proper disposal. Some items, such as absorbent rags or booms may have to be cut up.

i. Place all recovered liquid wastes and contaminated soil in drums for removal to an approved disposal site.

Following are procedures to follow if a large amount of material spills onto unprotected ground and ground water is contaminated. Because the water table level onsite is only about 10 ft below the ground surface, cleanup and containment of spills reaching or likely to reach the groundwater will be accomplished by construction of interceptor trenches. Ground water flow is in the general direction of the Queen River. The trench will be constructed across the entire front of the migrating body of material (i.e., the trench will be a few feet wider on either side of the spill boundaries as can be determined from surface observations). Figure 29 illustrates this. This trench will be as narrow as the excavating equipment will allow. It will be constructed to a depth of 1 to 4 ft below the water table surface. The downstream wall of the trench will be lined with an impermeable and resistant material to prevent further migration of the spilled material. If the trench

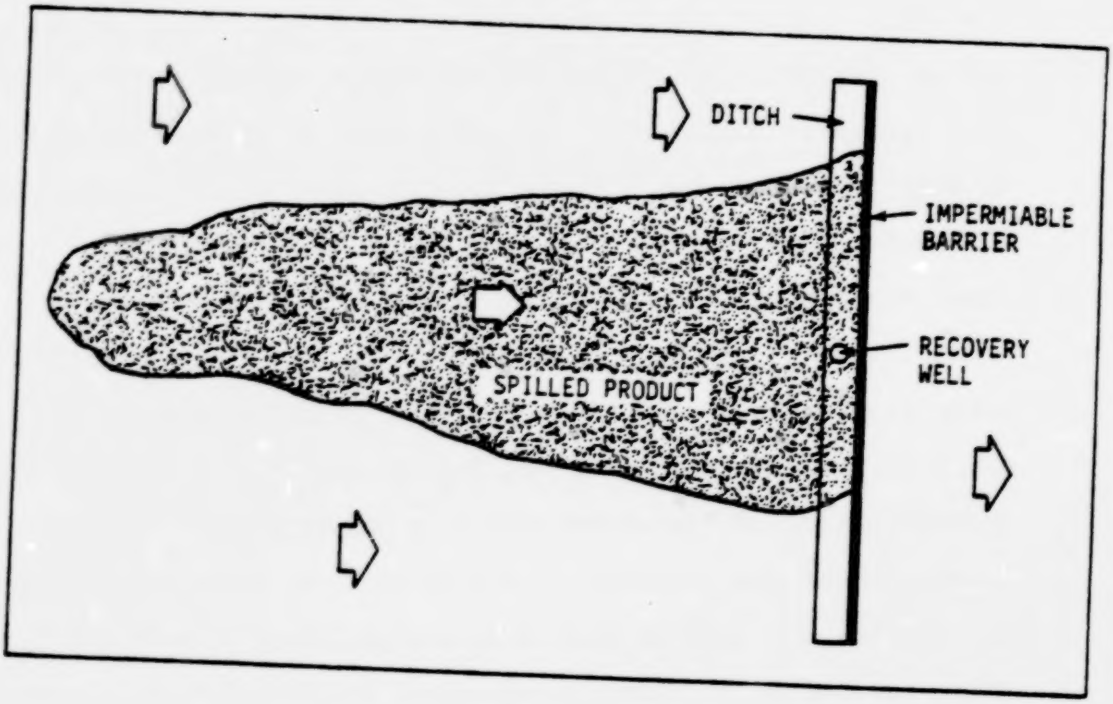

DITCH
IMPERMIABLE BARRIER
RECOVERY WELL
SPILLED PRODUCT

Figure 29. Interceptor trench.

is deep enough, the contaminated water will collect in the ditch and will be pumped out as required. A pump to create a zone of depression will be used to increase speed of recovery. This is accomplished by first placing a 16- to 18-in. diameter galvanized culvert pipe, slotted or perforated and capped on the bottom, in the bottom of the trench about midway from each end. Fiberglass or steel window screening is then wrapped around the pipe where it is slotted and then secured with wire. The trench is then backfilled within 2 ft of the ground surface with gravel and finished with native soil. Figure 30 shows a cross section of an interceptor trench. When pumping is required to prohibit contamination of the water table, a submersible pump is lowered into the culvert. Pumping will be done continuously to prevent the contaminant from moving around the ditch. When recovering a flammable material from the ground water, explosion- and spark-proof pumping equipment, tools, and clothing is used because of the possible presence of explosive vapors. Smoking, and heat sources in the area will be eliminated.

All emergency equipment used in the emergency must be cleaned and fit for use prior to resumption of plant operations in the affected areas.

Floods

Approximately half of the facility property is located within the 100-year flood plain and is subject to floods of

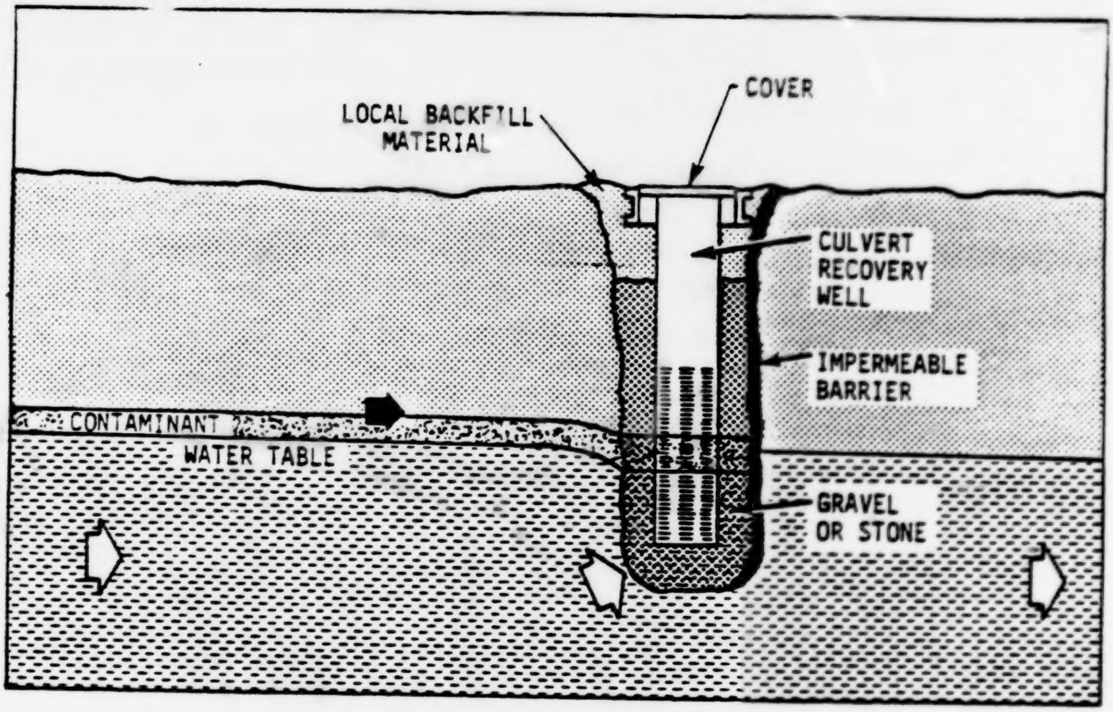

COVER
LOCAL BACKFILL MATERIAL
CULVERT RECOVERY WELL
IMPERMEABLE BARRIER
CONTAMINANT
WATER TABLE
GRAVEL OR STONE

Figure 30. Interceptor trench (cross-section).

1 to 3 feet in depth. The present waste pile and drum storage areas are within the 100-year flood plain.

The drum storage area and waste pile are both subject to flooding. The long-term solution is to move these functions to higher ground. If a flood occurs before this relocation, the following steps should be taken:

1. Check with the National Weather Service in Providence, Rhode Island, or the Army Corps of Engineers for a projected flood crest.
2. If the crest will result in less than 1 ft of water in the waste pile or drum area, the areas will be diked with sandbags up to a level 1 ft over the projected level.
3. If the crest will result in more than 1 ft of water in the waste pile and drum areas, the waste will be removed to a waste disposal facility. It is estimated the drums will take 3 to 4 hours to remove. The waste pile is expected to take up to 8 hours to remove; therefore a sandbag dike will be constructed to protect the site during the removal time.
4. Should a fire, explosion, spill or material release occur during the flooding, the sections addressing these occurrences will be consulted.

G-4e Prevention of Recurrence or Spread of Fires, Explosions or Releases [40 CFR 264.56(e)]

Actions to prevent the recurrence or spread of fires, explosions or releases include stopping processes and operations, collecting and containing released waste, and recovering or isolating containers. The onsite training manual addresses the specific actions to be taken in an emergency. In addition, if the facility stops operations in response to an emergency, the emergency coordinator will monitor valves, pipes, and other equipment for leaks, pressure build up, gas generation or ruptures.

G-4f Storage and Treatment of Released Material [40 CFR 264.56(g)]

Immediately after an emergency, the emergency coordinator will make arrangements for treatment, storage, or disposal of recovered waste, contaminated soil, surface water, or any other contaminated material.

G-4g Incompatible Wastes [40 CFR 264.56(h)]

The emergency coordinator will ensure that wastes which may be incompatible with the released material are treated, stored or disposed of until cleanup procedures are completed.

G-4h Post-Emergency Equipment Maintenance [40 CFR 264.56(h)(2)]

After an emergency event, all emergency equipment listed in section G5 will be cleaned so that it is fit for use or it will be replaced. Before operations are resumed an inspection of all safety equipment will be conducted as discussed in section F-2. The Regional Administrator, state, and local authorities will be notified that post-emergency equipment maintenance has been performed and operations will be resumed.

G-4i Container Spills and Leakage [40 CFR 264.171]

Refer to section G-4d for a discussion of emergency response procedures for container spills and leakage.

G-4j Tank Spills and Leakage [40 CFR 264.194(c)]

Refer to section G-4d for a discussion of tank spills and leakage emergency response procedures.

G-4k Waste Piles

G-4k(1) Indication of Waste Pile Containment System Failures

Per the inspection schedule discussed in section F-2, the waste pile storage area will be inspected on a weekly basis. If during an inspection liquid is detected in the leachate monitoring manhole a sample will be collected and analyzed for lead and hexavalent chromium. If lead and/or hexavalent chromium is detected, the containment system evaluation and repair plan will be implemented. If inspection of the membrane liner indicates there are tears, holes, separation of layers, thin spots, cracks, shrinkage, hardness, excessive permeability, or blisters, the plan will also be immediately implemented. Other indications of waste pile containment system failure which would require implementation of the plan include: deterioration or loosening of the joint holding the liner to the foundation, loss of base material or soil covering liner, exposing the liner to direct sunlight, or foundation deterioration or cracking.

G-4k(2) Elements of a Containment System Evaluation and Repair Plan

If there are indications of waste pile containment system failure, the containment system evaluation and repair plan will be implemented immediately. The plan clearly outlines the steps necessary to evaluate the extent of damage to the containment system and measures necessary to correct a containment deficiency. Structures involved in the containment system evaluation include: the foundation, liner, leachate, and runoff collection system, waste pile base, leachate monitoring manhole, and perimeter soil embankment. The most vulnerable unit of the containment system is the liner which will undergo the following tests to ensure integrity:

- visual inspection for cracks, holes, etc.
- laminate thickness
- cold bend
- tensile strength
- tear strength
- puncture resistance
- hydrostatic resistance
- dimensional stability
- ozone resistance
- seam strength

Other structures will require thorough visual inspection for deficiencies. Also included in the plan is a schedule of actions in the event of containment failure and a description of repair techniques.

G-4k(3) Criteria and Procedures for Removal of Waste Pile From Service in Case of Positive Failure of the Containment System [40 CFR 264.255(b), 264.255(c), and 264.255(d)(1)]

In the event there is a positive failure of the containment system the waste pile will be removed from service. Front-end loaders will be used to remove the waste pile from the containment system and load the haul trucks. Waste will be disposed of at a facility approved to handle that particular waste. Newly generated waste will be stored in 3 cu. yd. dumpsters until the containment system is repaired.

G-4k(4) Restoration of a Waste Pile to Service [40 CFR 264.255(e)]

After removing the waste pile from service and disposing of the waste pile, the containment system will be repaired as soon as possible. Depending upon the severity of the repair work, a registered professional engineer will certify that the containment system still meets the design specifications approved in the RCRA permit.

G-4k(5) Course of Action After Waste Pile is Removed From Service (40 CFR 264.255(f) and 264.258]

When the waste pile containment system is permanently removed from service the following steps will be necessary to close the facility and restore the grounds to their original appearance:

1. Remove hazardous waste pile to a facility approved to handle that particular waste.
2. Remove base, liner, foundation, underdrains, underdrain collection sump, leachate collection system, and leachate monitoring manhole, and dispose of at a facility approved to handle that particular waste.
3. Remove any contaminated soil and dispose of at a facility approved to handle that particular waste.
4. Remove groundwater subdrains and store for reuse or resale.
5. Fill diversion ditch and pit from waste pile containment system with onsite soil and grade.
6. Apply seed and straw in an effort to reclaim the area.
7. Decontaminate front-end loaders, haul trucks, pumps, etc. in the container storage area and dispose of resulting wastes appropriately.
8. An independent registered professional engineer will certify closure of the waste pile containment system.

G-5 Emergency Equipment

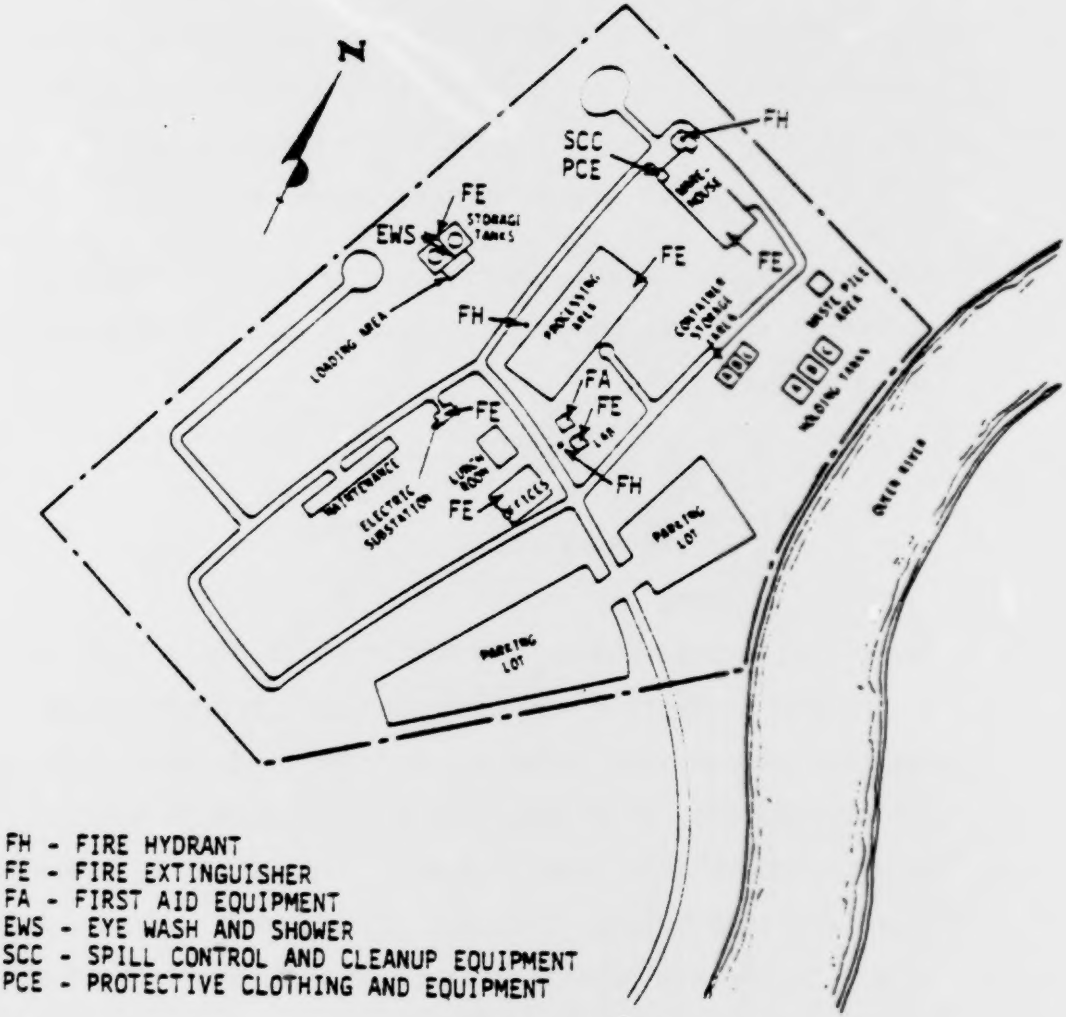
Location of emergency equipment is shown on Figure 31. The plant employs several mechanisms for fire control. First, three fire hydrants are located in the plant area Each hydrant will deliver 500 gal/min of water. Approximately 1000 ft of hose is stored in the warehouse.

Also available for fire control are portable fire extinguishers; at least one extinguisher is located in each of the following areas:

- Drum storage area
- Storage tank area
- Processing area
- Warehouse
- Electric substation
- Lab
- Offices

These fire extinguishers are dry chemical Types A, B and C. Type A is capable of extinguishing fires involving ordinary combustible materials such as wood, cloth, paper, rubber, and many plastics; Type B is capable of extinguishing fires involving flammable liquids, oils, greases, tars, oil base paints, lacquers, and flammable gases; and Type C is capable of extinguishing fires involving energized electrical equipment. All extinguishers comply with National Fire Code standards for portable fire extinguishers, and they are inspected after each use or at least monthly. Records of these inspections are kept in the operating log.

Equipment for use in containing and cleaning up spilled hazardous wastes is stored in the warehouse. A list of


N
FH
SCC
PCE
FE
EWS
STORAGE TANKS
FE
FE
FH
LOADING AREA
PROCESSING AREA
CONTAINER STORAGE AREA
WASTE PILE AREA
HOLDING TANKS
FA
FE
LAB
FE
FH
MAINTENANCE
ELECTRIC SUBSTATION
LUNCH ROOM
OFFICES
FE
PARKING LOT
PARKING LOT
RIVER

FH - FIRE HYDRANT
FE - FIRE EXTINGUISHER
FA - FIRST AID EQUIPMENT
EWS - EYE WASH AND SHOWER
SCC - SPILL CONTROL AND CLEANUP EQUIPMENT
PCE - PROTECTIVE CLOTHING AND EQUIPMENT

Figure 31. Location of emergency equipment.

equipment and materials stored and maintained in the warehouse is listed in Table 13, along with the function of each.

First aid supplies at the first aid station include the following:

- Bandage materials
  - band aids
  - gauze pads and rolls
  - adhesive tape
  - butterfly bandages
- Antibacterial ointments
- Splints
- Aspirin
- Emetic - Syrup of Ipecac
- Local and topical anesthetics
- Eyewash bottle and solution

Emergency eyewash fountains and showers are located at the east and west ends of the waste storage tank area. Each unit consists of a drench showerhead with "panic bar"-operated frost-proof valve and an eyewash with a dirt cover and "panic bar"-operated frost-proof valve. A sign reading "EMERGENCY SHOWER AND EYEWASH FOUNTAIN" is posted at each unit. A hose station is also located near the eyewash/shower station at the west end of the tank storage area.

Protective clothing and equipment is provided to protect employees during normal and emergency operations. Hard hats, protective eyewear, and steel-toed boots or shoes are the minimum protective clothing required. Other protective clothing equipment available on site include:

Clothing
- Plastic aprons and gauntlets
- Rubber and Neoprene boots

TABLE 13. MATERIALS AND EQUIPMENT FOR SPILL CONTAINMENT AND CLEANUP

Material(s)/equipment	Quantity	Substances contained/ absorbed/cleaned up	Notes
Standard industrial absorbents (Sorb-All, Vermiculite, etc.)	A drum should be placed in all plant areas where small spills are suspect.	For small spills of oil, solvents, aqueous materials. Do not use for acids or caustics unless first neutralized.	Each drum should be accompanied with broom (or shovel) and dustpan.
Sandbags	800-1000	Sand is unreactive with most any chemical except hydrofluoric acid.	Keep in readily accessible area(s) near most concentrated area(s) of tanks or drums.
Sand	50-100 yd^3	Sand is unreactive with most any chemical except hydrofluoric acid.	Use primarily for containment or large spills. Containment and cleanup of small spills. Also, keep in barrels in areas where small spills may occur more frequently (drum storage areas, process pads, etc.). Keep covered if outside.
Absorbent boom, weighted or with curtain or skirt	2	In water, most insoluble or slightly soluble organics. Most materials on land. Do not use for acids.	Employ one boom around out-fall discharge on permanent basis and one for backup.

(continued)

TABLE 13 (continued)

Material(s)/equipment	Quantity	Substances contained/ absorbed/cleaned up	Notes
Absorbent pads	Carton (100 pads-Conwed)	In water, most insoluble or slightly soluble organics. Most materials on land. Do not use for acids.	Will float on water so are most helpful in cleaning up materials contained within the boom boundaries or in diked areas where a chemical sheen has formed on water collected within. Also, place around equipment or in areas where leakage or spillage occurs frequently (i.e., pumps, loading/unloading areas).
Straw	15-20 bales	Petroleum, distillates, oil, organic solvents. Do not use for acids or caustics.	Can be used for diking and absorption for land spills. If booms become saturated, can be tied together and used to contain and absorb water spills. Since they sink partly below water surface, they are useful for substances slightly heavier than water.
Submersible pump	1	See manufacturers (Gould, Flygt, Peabody) for specifications on material-handling capabilities.	Can be used to remove diked liquids, etc.

(continued)

TABLE 13 (continued)

Material(s)/equipment	Quantity	Substances contained/ absorbed/cleaned up	Notes
Flexible (Neoprene) hoses with quick couple fittings.	75 ft minimum	N.A.	Neoprene is resistant to most acids and solvents, but not all. For instance, benzene will degrade Neoprene.
55-gallon drums; steel, stainless steel	Variable	Most organics (steel); acids, caustics, contaminated absorbent materials (stainless steel).	

- Short and long rubber gloves
- Rain suits
- Chemical-resistant suits (Tyvek, polyurethane, polyethylene)
- Polyethylene gloves

Equipment
- Face shields and extra protective eyeglasses
- Disposable respirators
- Chemical cartridge respirators w/cartridges for organic vapors and acid gases; half- and full-face types
- Chest-mounted gas mask cannisters
- Self-contained breathing apparatus (SCBA) operated in pressure-demand mode

This equipment is located in the warehouse for easy access by personnel.

G-6 Coordination Agreements

Tankopile has made the following arrangements to assist in response to emergency situations.

1. An agreement has been made with a local disposal facility to provide a tank truck on a 24-hour basis.

2. Copies of the contingency plan have been given to the local police and fire departments, the hospital, and the state and local Emergency Response Teams. These agencies were asked to review and comment on the plan and have detailed the actions they will take in response to any emergency.

The following organizations have been sent copies of the contingency plan:

Fire Chief Charles Lang
Anytown Fire Department
6th and Main Streets
Anytown, Rhode Island 02881

Fire Chief David Kuntz
Washington County Fire Department
11934 State Route 43
Brixton, Rhode Island 02881

Dr. Joyce Henderson
Anytown Hospital
2914 Elm Street
Anytown, Rhode Island 02881

Dr. Joseph Smyth
Washington County Hospital
1293 State Route 43
Georgetown, Rhode Island 02881

Mr. Robert Burns
Rhode Island Emergency Management Agency
1200 Washington Boulevard
Providence, Rhode Island 02908

Ms. June Davidson
Washington County Emergency Management Agency
11850 State Route 43
Brixton, Rhode Island 02881

G-7 Evacuation Plan

All emergencies require prompt and deliberate action. In the event of any major emergency, it will be necessary to follow an established set of procedures. Such established procedures will be followed as closely as possible; however, in specific emergency situations, the Emergency Coordinator may deviate from the procedures to provide a more effective plan for bringing the situation under control. The Emergency Coordinator is responsible for determining which emergency situations require plant evacuation.

The facility employs a warning system with a specific alarm signal to initiate evacuation of all plant areas. In addition to the alarm, the internal telephone system is used to notify key plant personnel as to the nature of the emergency and recommended plan of action. Total plant evacuation is initiated only by an Emergency Coordinator.

A fire alarm system is installed with alarm boxes located at critical areas throughout the plant. The fire alarms can also be used to summon aid in other emergency situations. All applicable employees are familiar with alarm box locations.

In the event plant evacuation is called for by the Emergency Coordinator, the following actions will be taken:

1. The signal for plant evacuation will be activated.

2. The guards will immediately open the gates. No further entry of visitors, contractors, or trucks will be permitted. All vehicle traffic within the plant will cease to allow safe exit of personnel and movement of emergency equipment.

3. ALL personnel, visitors, and contractors will immediately leave through the exit gate.

4. No persons shall remain or reenter the location unless specifically authorized by the person or persons calling for the evacuation. In allowing this, the person in charge assumes responsibility for those persons within the perimeter. Those within the fenced area will normally only include fire brigade personnel or emergency teams.

5. ALL persons will be accounted for by their immediate supervisors. Supervisors will designate certain gates as the safest exits for his or her employees and will also choose an alternate exit if the first choice is inaccessible. To assist in this endeavor, the Emergency Coordinator will use the internal telephone system to call the area supervisor, to inform him or her of the nature of the emergency.

6. During exit, the supervisor should try to keep his or her group together. Rally points for specific areas are shown in Figure 28. Immediately upon exit through the gate, the highest ranking supervisor

will prepare a list of all personnel at the exit gate. All other personnel who have persons reporting to them should report immediately to the front gate for final accounting.

7. Upon completion of the employee list, the supervisor in charge will hand-carry the list to the Emergency Coordinator. All other personnel will remain at the gate area.

8. Contract personnel should also be listed with the name of their company. Contract foremen should report to the front gate.

9. The names of fire brigade and/or other emergency team members involved in emergency response will be reported, in writing, to the front gate by designated response team personnel.

10. A final tally of persons will be made by the Emergency Coordinator.

11. No attempt to find persons not accounted for will involve endangering lives of others by reentry into emergency areas.

12. A plant guard at each gate will also maintain an updated list of all personnel to aid in the accountability procedure.

13. Reentry into the fenced area will be made only after clearance is given by the Emergency Coordinator. At his direction, a signal or other notification will be given for reentry into the plant.

14. In all questions of accountability, immediate supervisors will be held responsible for those persons reporting to them. Visitors will be the responsibility of those employees they are seeing. Contractors are the responsibility of those persons administering the individual contracts. Truck drivers are the responsibility of the warehouse supervisor or the area supervisor where the truck is loading/unloading. The guards will aid in accounting for visitors, contractors, and truckers by reference to the sign-in sheets.

15. Drills are held to practice all of these procedures and are treated with the same seriousness as an actual emergency.

G-8 Required Reports [40 CFR 264.56(d) and 264.56(i)]

As required by §264.56(J), any emergency event (e.g., fire, explosion, etc.) that requires implementing the contingency plan will be reported in writing within 15 days to the EPA Regional Administrator. A reporting form for emergency events is shown in Figure 32.

In addition to these reporting requirements for state and Federal authorities, Tankopile also has internal reporting requirements. The following incidents require that an incident report be completed and returned to the safety director within 5 working days and made part of the operating record:

1. All fires
2. Rupture disc releases
3. Unusual gas or vapor releases
4. Chemical spills of more than 10 gallons (or smaller volumes if highly toxic materials are involved)
5. All injuries except minor cuts and bruises (all burns and chemical irritations)
6. All equipment damage due to malfunction or operating error
7. All "near misses" of the above variety that could have had serious consequences

REPORTING FORM FOR EMERGENCY EVENTS

Name, address, and phone number of owner or operator

Name, address, and phone number of facility

Date, time, and type of incident (e.g., fire, explosion, etc.)

Name and quantity of material(s) involved

Extent of injuries (if any)

Assessment of actual or potential hazards to human health or the environment (if applicable)

Estimated quantity and disposition of material recovered from the incident

Send to: (Name)
U.S. EPA, Region I
Regional Administrator (EPA)
JFK Federal Bldg.
Boston, Massachusetts 02203
(Name) Chief
Environmental Emergency Branch
U.S. EPA, Region I
JFK Federal Bldg.
Boston, Massachusetts 02203

Figure 32. Sample reporting form for emergency events.

Amendments to the Contingency Plan

The contingency plan will be reviewed and immediately amended, if necessary, whenever:

1. The facility permit is revised
2. The plan fails in an emergency
3. The facility changes in its design, construction, operation, maintenance, or other circumstances in a way that materially increases the potential for fires, explosions, or releases of hazardous waste or hazardous waste constituents, or changes in the response necessary in any emergency
4. The list of emergency coordinators change
5. The list of emergency equipment changes

G-9 Amendments to the SPCC Plan

The Tankopile Finishing Company, prior to the submission of this application, did not have a Spill Prevention, Control and Countermeasure (SPCC) Plan. Therefore, §264.52(b) is not applicable, and the requirements for spill prevention, control and countermeasures were addressed in various sections of this contingency plan.

SECTION H

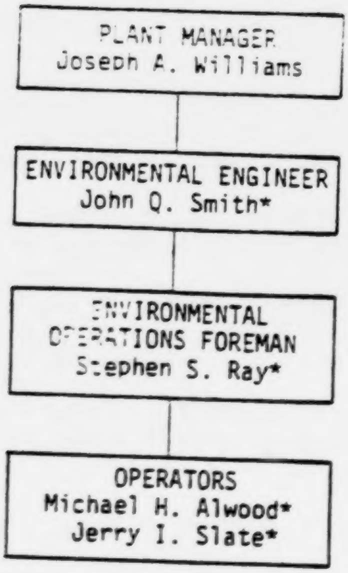
PERSONNEL TRAINING

The information contained in this section outlines the personnel training program for Tankopile's hazardous waste storage facility in accordance with the requirements of 40 CFR §122.25(a)(12) and §264.16.

H-1 Outline of Training Program [40 CFR 122.25(a)(12)]

H-1a Job Titles and Duties

Figure 33 shows the organization of personnel at the facility. Only four employees are directly involved with the handling of waste: The environmental engineer, the environmental operations foreman, and two operators. Management responsibilities involving compliance with RCRA regulations but not involving actual handling of the wastes are split between the environmental engineer and the plant manager. Maintenance personnel (i.e., electricians and mechanics) work in the waste handling area, but they do not handle wastes directly. The duties, responsibilities, and qualifications of each position follow:


PLANT MANAGER
Joseph A. Williams
ENVIRONMENTAL ENGINEER
John Q. Smith*
ENVIRONMENTAL
OPERATIONS FOREMAN
Stephen S. Ray*
OPERATORS
Michael H. Alwood*
Jerry I. Slate*

*Indicates those personnel directly involved with hazardous waste activities.

Figure 33. Organization chart for Tankopile's HWM facility.

Position Title: Environmental Engineer

Name of employee: John Q. Smith

Position Responsibilities and Duties:

- Emergency Coordinator for all hazardous waste activities.
- Training of plant personnel in the proper handling of raw materials, intermediates, finished products, and waste byproducts.
- Responsible for all air, water, and solid waste control systems on the site.
- Obtains all required permits and licenses or modifications of same from local, state, and Federal regulatory bodies.
- Resolves problems involving permits and licenses from local, state, and Federal regulatory agencies.
- Notifies proper authorities in emergency situations.
- Reports to Plant Manager.
- Regularly inspects plant grounds and all facilities for status of air, water, and solid/hazardous waste emissions and controls.
- Consults with maintenance foreman on questions involving emergency action.
- Drafts and submits to plant manager all required reports to EPA or the State.

Experience and Qualifications:

- B.S. degree in Chemical, Civil, or Environmental Engineering. B.S. Degree in Chemistry also acceptable.
- 1-3 years experience in industrial or municipal pollution control management.
- Training and/or experience in hazardous waste management is desireable.

Date: 2/26/82
Revision No.: 0
[illegible]

Position Title: Environmental Operations Foreman

Name of employee: Stephen S. Ray

Position Responsibilities and Duties:

- Overall operation and maintenance of the hazardous waste storage facility.
- Maintains facility compliance with RCRA and other permits.
- Oversees operators and reviews their performance.
- Trains operators to:
    - Operate materials/drum handling equipment safely and effectively
    - Handle leaks, spills, and emergency situations
- Maintains operating log, monitoring records, maintenance records, inspection records, personnel training records, and all other required records.
- Notifies plant environmental engineer, plant manager, and if so directed, proper authorities in emergency situations.
- Schedules all maintenance and repairs to structures and equipment for HWM facility.
- Oversees mechanic/electrician doing both scheduled and unscheduled maintenance and repair work to be sure he is not releasing hazardous wastes to the environment or contaminating himself.
- Reports to environmental engineer.

Experience and Qualifications:

- Associate (2-yr) degree in Chemical, Civil, Environmental, or Mechanical Engineering.
- 2-3 years experience in plant operation.
- Hazardous waste management experience helpful but not required.

Note: If applicant has no hazardous waste experience, special training in the functions and operation of a hazardous waste storage facility will be required before assuming job responsibilities. This training will be provided by Tankopile.

Position Title: Operator

Names(s) of employee(s): Michael H. Alwood
Jerry I. Slate

Position Responsibilities:

- Reports to environmental operations foreman.
- Operates waste handling equipment.
- Reviews all incoming wastes and assigns wastes to proper storage location.
- Inspects tanks, drums, and other storage equipment, and any gauges, dials, and recorders as required for proper operation and structural integrity.
- Inspects drum storage area for evidence of leaks and spills and inappropriately placed drums.
- Inspects emergency equipment on a regular basis.
- Assists in training of new operators and mechanics to handle hazardous waste spills and leaks safely and in such a way as to avoid exposures.
- Makes appropriate entries into operating log, monitoring records, inspection records, and maintenance records, and files them according to established system.
- Notifies foreman and other plant authorities as necessary in emergency situations.
- Takes emergency action on own authority in accordance with established procedures.

Experience and Qualifications:

- High school diploma
- 2-3 years experience as plant operator with related activities.

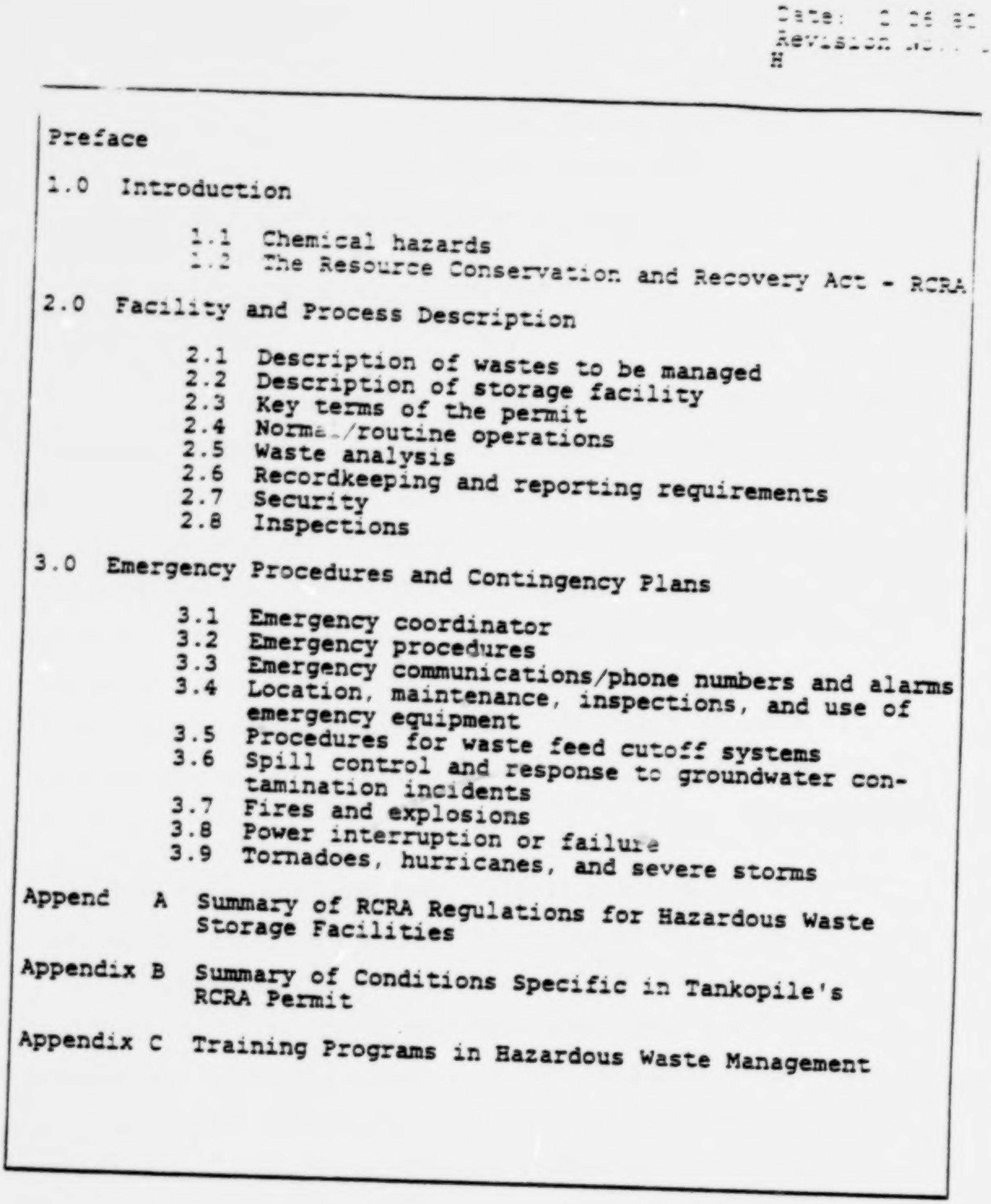
Note: Operator will also be required to maintain and inspect other pollution control equipment on the site.

H-1b Training Content, Frequency, and Technique

The program developed at Tankopile for training employees in the safe handling of hazardous wastes has been organized into a "training manual." Provisions are made for updating or revising the text as necessary to ensure compliance with the terms of the RCRA permit. Each employee has his or her own copy of the manual. An outline of the training manual is shown in Figure 34. This training manual is kept on file at the facility, and is available to EPA officials for review.

During the training program, employees are instructed on (1) the hazardous nature of chemicals and chemical wastes in general, (2) the purpose of RCRA and importance of maintaining compliance with RCRA regulations, (3) the hazardous nature of the wastes being stored in the facility, (4) proper handling and storage procedures for wastes, (5) emergency procedures and contingency plan.

The manual is used as the basis or framework for training Tankopile personnel in the proper procedures, equipment, and systems to be used in managing hazardous wastes.



Date: [illegible]
Revision No. [illegible]
H

Preface

1.0 Introduction

- 1.1 Chemical hazards
- 1.2 The Resource Conservation and Recovery Act - RCRA

2.0 Facility and Process Description

- 2.1 Description of wastes to be managed
- 2.2 Description of storage facility
- 2.3 Key terms of the permit
- 2.4 Normal/routine operations
- 2.5 Waste analysis
- 2.6 Recordkeeping and reporting requirements
- 2.7 Security
- 2.8 Inspections

3.0 Emergency Procedures and Contingency Plans

- 3.1 Emergency coordinator
- 3.2 Emergency procedures
- 3.3 Emergency communications/phone numbers and alarms
- 3.4 Location, maintenance, inspections, and use of emergency equipment
- 3.5 Procedures for waste feed cutoff systems
- 3.6 Spill control and response to groundwater contamination incidents
- 3.7 Fires and explosions
- 3.8 Power interruption or failure
- 3.9 Tornadoes, hurricanes, and severe storms

Append A Summary of RCRA Regulations for Hazardous Waste Storage Facilities

Appendix B Summary of Conditions Specific in Tankopile's RCRA Permit

Appendix C Training Programs in Hazardous Waste Management

Figure 34. Outline of Hazardous Waste Training Manual.

For key personnel, Tankopile plans to supplement the training outlined in the manual with attendance at one or more technical seminars or training programs on hazardous materials. A list of such seminars or programs is included in Appendix C of the training manual.

A brief description of each section of the training manual follows:

Section 1 - Introduction
This section of the manual introduces Tankopile employees to the general classes and characteristics of chemicals and chemical wastes that can be hazardous to health and property. In this context, the terms toxicity, reactivity, corrosivity, and ignitability are defined. It is Tankopile's policy that each employee handling chemical substances (raw materials, finished products, byproducts, and wastes) respect them and be aware of these potential hazards. The company's policy on the use of protective clothing and safety equipment to prevent accidental worker exposures and releases to the environment of hazardous chemicals and wastes is introduced.

The authority for regulating hazardous wastes under the Resource Conservation and Recovery Act (RCRA) also is discussed. The regulatory framework for classifying hazardous wastes, setting operational standards, and permitting procedures and achieving compliance is explored. The RCRA permit for Tankopile (once it is received) will also be studied to be sure that each employee is familiar with its terms.

Section 2 - Storage of Hazardous Wastes at Tankopile
This section focuses on the types of hazardous wastes that are handled and stored at Tankopile, normal/routine storage operations, and procedures for maintaining compliance with the RCRA permit (e.g., waste analysis, recordkeeping, inspections, and security). A site diagram showing the dimensions, capacity, and relative position of each storage area (tanks, containers, and piles) is included.

Training for normal or routine operating conditions includes the following topics:

- Proper operation and maintenance of the storage facility
- Scheduled inspections
- Purpose and use of security and communications systems
- Monitoring requirements for tracking and recording the operation of the facility
- Recordkeeping requirements and procedures

Section 3 - Emergency and Contingency Plans
The third section of the training manual provides detailed instruction on steps to be taken in the event of an emergency such as a waste spill or fire, power outage, or damage from wind and storms. The emergency coordinator is clearly identified, as are emergency phone numbers and directions

for locating and using onsite emergency equipment, alarms, and communications. Contingency plans are also detailed.

This manual is used in classroom training for both introductory training and annual review. All personnel involved with hazardous waste are required to complete 20 hours of classroom training in addition to 6 weeks on-the-job training. Also personnel receive an 8-hour classroom review training session once a year. This is supplemented with attendance by the environmental engineer at seminars and conferences involving hazardous waste management.

H-1c Training Director

The personnel training program is directed by Mr. John Q. Smith, the plant Environmental Engineer. Mr. Smith has been with Tankopile for 10 years. He received a M.S. degree in Environmental Engineering from the University of Cincinnati in 1971. He has been trained in all aspects of Hazardous Waste Management and attended various seminars on this subject. Records of his previous and ongoing training are kept on file at the personnel office.

H-1d Relevance of Training to Job Position

Mr. John Q. Smith, the plant Environmental Engineer, is responsible for teaching hazardous waste management procedures, including contingency plan implementation, to all waste handling personnel. The training program is tiered (Figure 35) in some areas to provide training to personnel at levels that are relevant to their positions within the

	Personal safety	Release prevention and response	Contingency plan	Emergency procedures	Hazardous waste management and practices	Record keeping	Hazardous waste handling and operations
Environmental Engineer	B	B	B	B	B	B	B
Environmental Operations Foreman	B	B	B	B	B	L	B
Operators	B	B	L	B	L	L	B

B = broad instruction
L = limited instruction

Figure 35. Level of training for hazardous waste personnel.

plant. For example, the foreman receives training in recordkeeping and other procedures required for compliance, whereas the operators do not. Operators are more specifically trained to maintain proper and safe operating procedures and to respond effectively in the event of a spill or other emergency.

H-1e Training for Emergency Response

This training program is designed to ensure that personnel not only handle hazardous wastes in a safe manner but also properly respond to emergency situations. The program trains hazardous waste handling/management personnel to maintain compliance under both normal operating conditions and emergency conditions.

Training elements addressing nonroutine and emergency situations (unscheduled shutdowns and startups related to storms, power outages, fires, explosions, spills) include:

- Procedures for locating, using, inspecting, repairing, and replacing facility emergency and monitoring equipment
- Key procedures for automatic waste feed cutoff systems
- Emergency communication procedures and alarm systems
- Response to fires or explosions
- Response to ground water contamination incidents and procedures for containing, controlling, and mitigating spills
- Shutdown of operations and power failure procedures
- Procedures for evacuation of nearby areas

In addition to the hazardous waste management personnel, a company fire brigade is on standby for response to all fires and other general plant emergencies. This fire brigade is trained both with classroom training methods and fire drills. The classroom training is required for introductory training and as an annual review for each member assigned to the fire brigade. The fire brigade training is not addressed in the hazardous waste training manual. For more information contact Tankopile's safety officer, George Shoe at 555-6790. The fire drills occur at a minimum of six times a year and are unannounced.

H-2 Implementation of Training Program

The director of the training program and all current waste-handling personnel have been fully trained at the time of this submittal. In the future, all new personnel will complete this training program within 6 months of assignment to the hazardous waste storage facility or within 6 months of their date of employment, whichever is later. No employee hired to work at this facility will work unsupervised prior to completion of the training program.

Employees are required to meet annually for review and update of this training program and to discuss and study the following subjects:

1) All hazardous wastes currently being handled at the facility, noting any changes in waste type, volume, source, characteristics, or location that have occurred during the past year.

2) The status of storage and operating conditions and procedures, noting any areas where there are problems or potential for problems. Employees participate in developing effective solutions.

3) The requirements contained in the facility's RCRA permit, noting any changes that have occurred during the past year. Areas where maintenance of compliance is a problem are identified and discussed, and effective solutions are sought.

4) Incidents that have occurred in the past year that warranted use of contingency plans and/or emergency action. This review focuses on the cause of the incident and identification of steps to be taken to prevent or to ensure better handling of such events in the future.

The annual review will also utilize the facility's annual report to EPA as a working document for the review.

Records documenting the job title for each position, job descriptions, names of employees, and completed training programs (both introductory and review) will be kept onsite in the personnel office of Zankopile Finishing Company. These records will be kept until closure of the facility for current employees and for 3 years from the date of the individual employee's termination for former employees.

SECTION I

CLOSURE PLAN, POST-CLOSURE PLAN, AND FINANCIAL REQUIREMENTS

This Section is submitted in accordance with the requirements of 40 CFR §122.25(a)(13), §264.112 through 115, §264.178, §264.197, and §264.258. This plan identifies all steps that will be necessary to partially close the facility at any point during its intended operating life and to completely close the facility at the end of its intended operating life. The plan also addresses the conditions and reasons under which partial closure will occur. A post-closure plan is not required because this is not a disposal facility and all wastes are being removed at closure

Tankopile will maintain an onsite copy of the approved closure plan and all revisions to the plan until the certification of closure completeness has been submitted and accepted by EPA, Region I. The Tankopile owner will notify the Regional Administrator at least 180 days prior to the date we expect to begin final closure. The closure date for closure of the entire facility will be 2002. Upon completion of closure, the Tankopile owner will submit to the Regional Administrator a certification by both the Tankopile owner and by a local independent registered professional engineer that the facility has been closed in accordance with the specifications in the approved closure plan.

I-1 Closure Plan [40 CFR 122.25(a)(13)]

I-1a Closure Performance Standard [40 CFR 264.111]

This closure plan was designed to ensure that the facility will not require further maintenance and controls, minimizes or eliminates threats to human health and the environment, and avoids escape of hazardous waste, hazardous waste constituents, leachate, contaminated rainfall, or waste decomposition products to the ground or surface waters or to the atmosphere. If there is evidence of any spills or leaks, samples will be taken and analyzed to determine the extent of contamination in the soil and if necessary, in groundwater. Any contaminated soil will be excavated, removed, and disposed of at a proper disposal facility. Any contaminated groundwater will be remedied. The entire site will be regraded subsequent to closure to prevent erosion. The following sections discuss in detail efforts to be made at Tankopile to satisfy the closure performance standard.

I-1b Partial and Final Closure Activities

Tankopile expects to perform partial closure when we remove our waste pile from its current location in the eastern portion facility to a new location in the northern portion facility. Final closure activities on the waste pile will occur in 1982. Our procedures for final closure of the waste pile, including waste removal, cleanup and decontamination activities, are described in Section I-1d(3) of the closure plan. Partial closure of the container storage and tank storage operations are not planned. However, in the event that future circumstances or decisions force us to discontinue our hazardous waste tank storage or hazardous waste container storage activities, Sections I-1d(2) and I-1d(1) of the closure plan present our procedures for final closure of each of the two storage areas. Any modifications to our existing facility equipment, structures, instruments or procedures related to the management of the three distinct portions of the facility will result in Tankopile updating the partial closure plan, and revising the closure plan accordingly.

At a maximum we expect the operation to consist of storage of 100 drums, 2 tanks and 1 waste pile during the life of the facility. Section I-1c of the closure plan describes the maximum inventory of wastes in storage at any given time during the operating life of Tankopile. Tankopile will secure permission to dispose of its wastes and enter into contractual agreements with XTC (an off-site surface impoundment) and the PEI hazardous waste landfill.

I-1c Maximum Waste Inventory

The following table shows the maximum inventory of wastes in storage at any given time during the operating life of Tankopile for 1 waste pile, 100 containers, and 2 tanks.

Waste pile:	
metal hydroxide sludge	50 yd^3
	50 yd^3 total
Containers:	
metal grindings	1870 gal
vinyl acetate sludge	605 gal
vinyl chloride sludge	605 gal
pickle liquor sludge	2420 gal
	5500 gal total
Tanks:	
pickle liquor	7500 gal
1,1,1-trichloroethane	7500 gal
	15000 gal total

I-1d Inventory Removal and Disposal or Decontamination of Equipment

Following waste removal, all piping to and from the two storage tanks will be disconnected, dismantled and decontaminated. The work will be supervised and performed using qualified Tankopile personnel. Personnel will be equipped with acid/solvent resistant coveralls (olefin material, coated with heavy polyethylene film), head protection, neoprene-coated gloves and boots resistant to solvents and acids. Both the wrists and ankles will be taped (electrical tape) to protect against upward and inward splash. Full face respirators with organic vapor and acid gases filter cartridges that seal directly to the mask will be used. Chemical neutralizers and spill control pillows will be employed in the event of any spills resulting from pipe drainage during the disconnection and dismantling process. Spill saturated spill control pillows will be placed in a 55-gallon polyethylene-lined, steel recovery drum located at the dismantling area for temporary storage.

Since contact of hydrochloric acid with some metals produces explosive hydrogen gas, extreme caution will be taken to utilize non-sparking tools and equipment during all cleanup and decontamination activities. Strict supervision will include provision for no open flames, hot surfaces, or smoking to be present in and surrounding the work areas.

The 3-in lines which transport the waste from the plant to the storage tanks will be dismantled. Positive displacement pumps, used to pump the wastes to tankers, and valves will be disconnected. In cases when it is difficult to remove all liquid or solid residues as these residues may be trapped behind heavy scale or rust or may be too viscous for pumping, the pipes, valves, pumps, dump trucks, and forklift trucks will be steam-cleaned to remove the residues. All contaminated wash waters, generated as a result of the steam-cleaning process, will be pumped by a positive displacement pump into a tanker truck and transported to the XTC facility (an off-site surface impoundment) located 30 miles from Tankopile in Kranville, Rhode Island (EPA I.D. Number RI0000020000).

Soils in the facility are not expected to be contaminated by the waste storage at Tankopile. However, the possibility of contamination occurring during the dismantling and cleaning of equipment and structures exists. An allowance has been made in the closure costs for removal and disposal of approximately 10 yd^3 using a front-end loader. If evidence of possible areas of soil contamination (in the form of soil discoloration or odor) exists, a soil sampling program will be instituted to determine the extent of soil contamination in those areas. At least one soil sample will be taken from the waste pile area (after removal of the liner) and one sample near the container storage area, where unloading operations occur. Augor soil borings with collected samples will be transported to a laboratory with GC/MS and atomic absorption capabilities. If contamination is found in the soil, those areas will be excavated to the depth at which no contamination is detected. All soils, contaminated equipment to be disposed, and solid residues will be loaded and transported by truck to the PEI landfill located 10 miles east of this facility in Newburg, Rhode Island (EPA I.D. Number RI0000010000).

Prior to leaving any of the site locations undergoing decontamination, decontamination of personnel protective clothing will be conducted by removing all bulk material from the boots and spraying, washing, and scrubbing with detergent solution all outside protective clothing materials as well as exposed skin surfaces (i.e., facial area).

I-1d(1) Closure of Containers

All the drum containers in the Tankopile container storage area will first be removed for transport to the PEI landfill. Because of the incompatibility of the types of wastes, the corrosive sludge drums, toxic metal grindings drums, and ignitable sludges drums will each be transported along with the pallets on separate truck trips to the landfill. The drums will be moved utilizing a forklift.

The container storage area will then be decontaminated with a series of solvent washes and all waste water and residues generated will be collected in the sumps and pumped to the holding tanks for immediate analysis and, if laboratory analysis indicates that the waste is hazardous, the material will be pumped from the holding tanks into tanker trucks and sent for off-site disposal at the XTC surface impoundment. If laboratory analysis shows no evidence of contamination, waste water and residues in the holding tanks will be discharged to the sewer system. The automatic sump pumps in each of the sump areas will then be removed and decontaminated as described in Section I-1d.

Approximately 550 gallons of waste water and residue are anticipated to result from the container storage area decontamination process.

I-1d(2) Closure of Tanks

The final spent hydrochloric acid waste load stored in the tank is pumped to a tanker (by use of a positive displacement pump) and transported to the local publicly owned treatment works (POTW) for treatment. The 1,1,1-trichloroethane solvent is pumped to a tanker in a similar manner, and the waste is transported to a reclamation facility.

1,1,1-trichloroethane, upon contact with acid or acid fumes, can evolve highly toxic chloride fumes and HCl may react with water or steam to produce toxic and corrosive fumes. For safety considerations due to the proximity of the two tanks to each other, Tankopile elects not to perform dismantling, cleaning and decontamination of the two tanks and associated piping concurrently, but in a sequential manner. Using properly qualified Tankopile personnel protected as described in I-1d, the following procedures will be used to decontaminate each of the two tanks:

First, the waste outlet valve will be opened to allow waste residuals remaining on the bottom to drain from the tanks. The waste will be drained from the tanks into 55-gallon polyethylene-lined, steel recovery drums located directly beneath the outlet. When filled, the drums will be sealed and sent off-site by truck to the PEI landfill for disposal. The waste outlet valve will then be closed.

A 2,000 gallon-per-hour steam cleaning unit (capable of washing a 16,000-gallon area of storage capacity/hour) will be rented to decontaminate the tanks. This process will generate residues in the form of contaminated wash waters. The waste outlet valve will again be opened and contaminated wash waters will be drained into 55-gallon steel recovery drums, sealed, and sent off-site by truck to the XTC surface impoundment for disposal. Approximately 2000 gallons of contaminated wash waters are anticipated to be generated during the steam cleaning of all tanks and equipment.

All the anciliary equipment associated with the tank will be detached from the tank. The equipment to be disconnected includes the nozzle for the level transmitter, piping inlets and piping exits. The pipes will be decontaminated by steam cleaning. Any visible spills or leakage detected during the disconnection process will immediately be remedied by spill saturation pillows, as discussed in Section I-1d.

To assess whether the tank steam cleaning process has been successful for the 1,1,1-trichloroethane storage tank, a member of the clean-up team will enter the tank with full protective gear and a combustible gas/oxygen detector. The team member will assess the hazard of the tank by local diffusion measurement of the percent of lower explosive limit of any residual 1,1,1-trichloroethane vapor in the tank. The detected presence of measured oxygen levels below 19.5%, or of combustible gas will result in rewashing the tank. For the HCl tank, litmus paper will be used for sampling the pH of the last drainage wash water. A neutral pH reading will indicate decontamination is complete.

Next, the concrete slab supporting the tank will be steam cleaned. The tank will then be dismantled from the foundation structure supports and either sold for scrap or resold.

[illegible] Closure of Waste Pile

The waste pile presently located in the northeastern section of the facility will be removed by June 1982. Closure of the waste pile will involve removal of the metal hydroxide sludge from the waste pile area. Tankopile personnel dressed in protective equipment described in Section I-1d will participate in the closure of the pile. Due to the design of the containment system of our waste pile storage area, the 2'6" of sand and the 1'6" of pea gravel underlying the pile must be removed since the waste pile has in all probability contaminated these layers. Extra precaution will be taken in removing the pea gravel to avoid damaging the CPE liner and the 4"-thick bentonite layer liner beneath the pea gravel. The waste materials, excavated by a front-end loader, will be loaded onto a dump truck equipped with equipment to avoid release of hazardous material over the sides. The material will be transported to the PEI landfill for disposal.

To avoid contamination of soils surrounding the piping due to cracking or stresses due to excavation, the surface of the bentonite liner will be flushed with water to drain and clean the perforated clay underdrains and remove residual materials from the pipe that goes to the collection sump. Leachate collected in the sump will be pumped into a tanker truck for transport to the XTC surface impoundment. After several flushings in this manner, the clay layer will be excavated with a backhoe and the leachate collection piping system, waste pile underdrains, and the submersible pump will be removed. The materials (except for the pump) will be transported to the PEI landfill for disposal. The pump will be steam cleaned for reuse. Soils in the excavated zone and within the perimeter ditch will be examined for signs of contamination and at least one soil core sample taken, as discussed in Section I-1d. If there is no proven contamination of the area, the excavation will be backfilled with fill soil from local sources and regraded. The collection sump will be backfilled to prevent collection of rainwater and erosion.

I-1e Schedule for Closure

Within 90 days after receipt of the final volume of hazardous wastes, final closure activities will be initiated. Completion of closure will be within 180 days of this occurrence. All financial calculations are based on a closure date in the year 2002. The Regional Administrator will be notified by Tankopile 180 days before beginning final closure. The proposed schedule for closure is shown in Figure 36. Final closure will be supervised and certified by a professional engineer, in addition to the owner or operator.

I-1f Extensions for Closure Time [40 CFR 264.113(a) and 264.113(b)]

Tankopile Finishing Company will not require an extension for closure time.

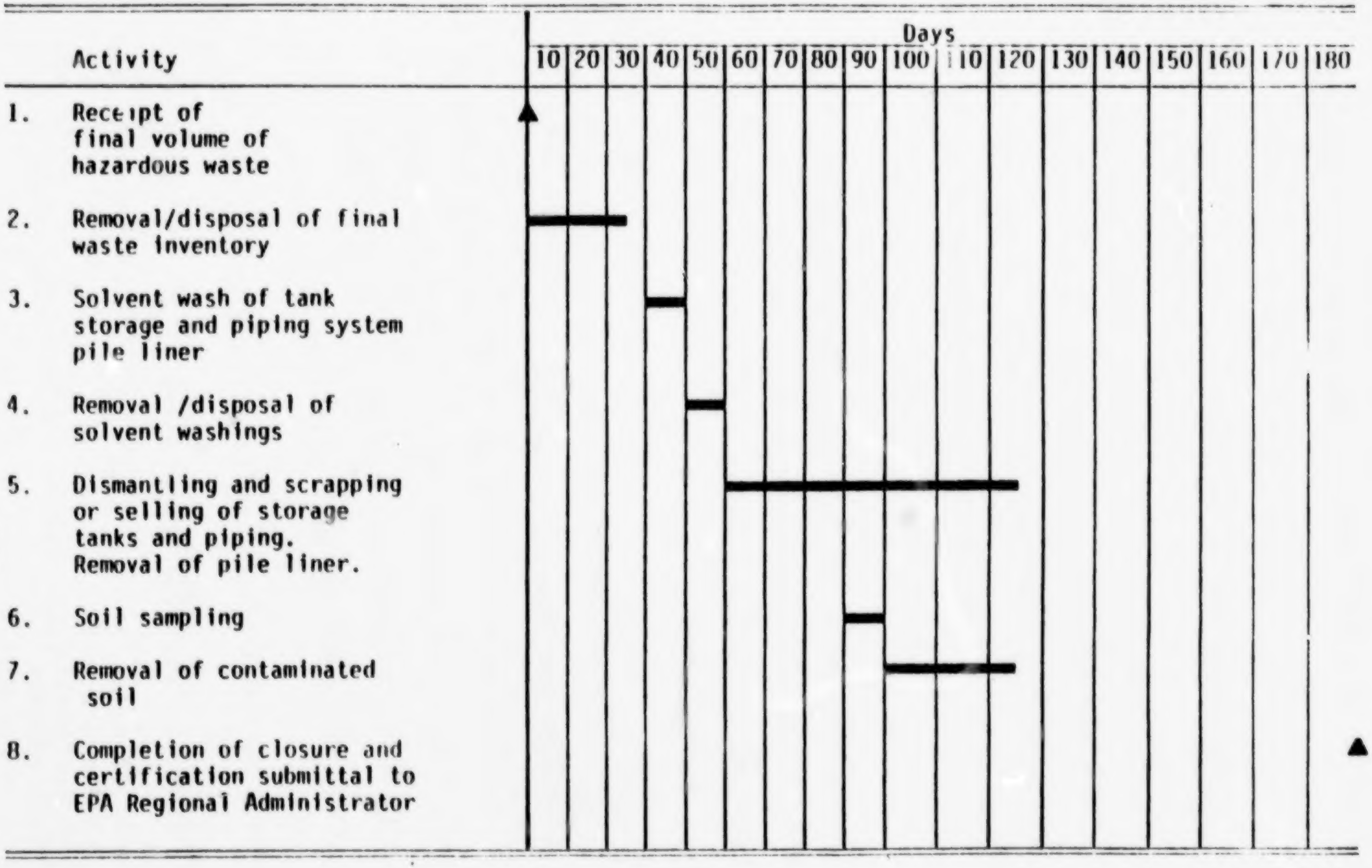


Figure 36. Anticipated closure schedule.

I-2 Post-closure Plans [40 CFR 122.25(a)(13)]

Post-closure care will not be needed for this facility because this is not a disposal facility.

I-3 Notice in Deed and Notice to Local Land Authority [40 CFR 122.25(a)(14)]

Because Tankopile is only a hazardous waste storage facility and not a disposal facility, notation is not necessary in the deed informing potential purchasers of restrictions associated with a disposal site, as required by 40 CFR 264.120.

I-4 Closure Cost Estimate [40 CFR 122.25(a)(15) and 264.142]

The closure cost information presented is submitted in accordance with the requirements of 40 CFR §122.25(a)(15), §264.142, and §264.143.

An estimated $57,500 (March 1982 cost estimate) will be needed to close the Tankopile hazardous waste storage facilities. The closure costs are presented by activity in Table 14. Activities include removal of waste inventory, decontamination, disposal of wash solvents, disposal of contaminated soil, and closure certification.

The assumptions made in the cost estimate are as follows:

1. Removal of final waste inventory. The waste volume is 100 drums of assorted wastes; 7500 gallons of waste HCl, 7500 gallons of waste 1,1,1-trichloroethane, and 50 yd^3 of metal hydroxide sludges. Disposal cost estimates are based on land disposal of the drums and waste pickle liquor, incineration of the waste 1,1,1-trichloroethane.

TABLE 14. CLOSURE COST ESTIMATE[a]

A. Tanks	
1. Removal of final waste inventory	
a. Disposal cost (7,500 gal HCl waste @ $0.10/lb)	$ 6,000
b. Disposal cost (7,500 gal 1,1,1-trichloroethane @ $0.15/lb)	9,000
c. Plant labor (8 h @ $12/h)	96
d. Hauling (2 trips @ $350/trip)	700
Subtotal	$15,000
2. Decontamination of storage tanks, piping, and pipe liner	
a. Solvent (100 gal @ $2/gal)	$ 200
b. Supervision (20 h # $20/h)	400
c. Labor (40 h @ $12/h)	480
d. Dismantling of two 7500-gal tanks and ancillary equipment (80 h @ $12/h)	960
e. Disposal cost of solvent, water washes and spill control pillows (35 drums @ $40/drum)	1,400
f. Discharge cost to the city sewer system	260
Subtotal	$3,700
B. Containers	
1. Removal of final waste inventory	
a. Disposal cost (100 drums of various chemicals @ $40/drum)	$ 4,000
b. Plant labor (8 h @ $12/h)	96
c. Hauling (3 trips @ $350/trip)	1,050
d. Disposal of contaminated container storage area decontamination washes (1 trip @ $250/trip)	250
Subtotal	$5,400
C. Waste Pile	
1. Removal of final waste inventory	
a. Disposal cost (50 yd^3 metal hydroxide sludges @ $80/ton)	$ 4,000
b. Plant labor (24 h @ $12/h)	288
c. Hauling (1 trip @ $350/trip)	350
Subtotal	$ 4,700

(continued)

TABLE 14 (continued)

2. Disposal of contaminated base material, liner, foudnation, and contaminated soil	
a. Removal (50 tons: 80 h @ $62/h)	$ 4,960
b. Hauling (2 trips @ $350/trip)	700
c. Disposal (50 tons @ $80/ton)	4,000
d. Disposal of residual liquid from sump	250
Subtotal	$9,900
3. Decontamination of equipment	
a. Rental of steam cleaner (2 day @ $75/day	$ 150
b. Disposal of decontamination residues (5 drum @ $40/drum)	200
Subtotal	$ 350
D. Soil Sampling and Analysis	
1. Core samples	$ 400
2. Core analyses	600
Subtotal	$ 1,000
E. Closure Certification	
1. Labor (P.E. 48 h @ $60/h)	$ 2,880
2. Expenses (6 days @ $75/day)	450
3. Transportation (300 mi @ $0.23/mi	69
Subtotal	$ 3,400
F. Subtotal	$44,300
1. Plus 15% administration	6,600
2. Plus 15% contingencies	6,600
G. Total Closure Cost	$57,500

[a] 1982 dollars.

2. Decontamination of storage tanks, piping, and pile liner. Tanks and piping for the HCl tank will be washed with water, whereas the 1,1,1-trichloroethane tank will be washed with an alcohol wash. After removal of the waste pile, the pile liner will also be removed by plant personnel.

3. Removal of solvent washings. It is estimated that two drums of water wash and two drums of alcohol solvent wash will require disposal. Cost is estimated at $40/drum.

4. Disposal of soil in contaminated area. Although the soil is not expected to be contaminated by the waste storage at Tankopile, an allowance has been made in the closure costs for removal and disposal of approximately 20 yd^3. It is assumed that 1 yd^3 of soil will weigh approximately 1 ton.

5. Closure certification. The cost of certification of closure by a professional engineer (P.E.) is estimated on the basis of a labor rate of $40 per hour and an estimate of other expenses for a 6-day period.

6. Total costs were calculated by adding 15 percent administrative costs and 15 percent for contingencies.

This closure cost estimate will be kept on file at the Tankopile facility. It will be revised whenever a change in the closure plan affects the cost of closure. It will be adjusted annually (from the date of its original development) to reflect changes in closure cost brought about by inflation. The Department of Commerce's Annual Implicit Price Deflator for Gross National Product* will be used to make this adjustment.

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* Published by U.S. Dept. of Commerce in its monthly publication "Survey of Current Business."

I-5 Financial Assurance Mechanism for Closure [40 CFR Sections 122.25(a)(1), 264.143, and 264.150]

I-5a Closure Trust Fund [40 CFR Sections 264.143(a) and 264.151(a)(1)]

Tankopile will establish a closure trust fund as the selected financial assurance mechanism at the Anytown National Bank. An originally signed duplicate of the trust agreement will be sent to the Regional Administrator by certified mail. A copy of the agreement is attached as appendix C. A payment of one-tenth of the estimated closure cost will be deposited annually in this account. Although the expected life of the facility is 20 years, the duration of the permit is expected to be 10 years. Consequently, the payment period will be 10 years.

I-5f Combinations

I-6 Post-Closure Cost Estimate [40 CFR Sections 122.25(a)(16) and 264.144]

Since all wastes will be disposed of offsite, there will be no post-closure activities or costs.

I-7 Financial Assurance Mechanism for Post-Closure [40 CFR Sections 122.25(a)(16) and 264.145]

Since all wastes will be disposed of offsite, there will be no post-closure activities or costs.

I-8 Liability Insurance [40 CFR Sections 122.25(a)(17) and 264.147]

I-8a Sudden Insurance [40 CFR Sections 264.147(a), 264.151(i), and 264.151(j)]

Tankopile has obtained liability insurance for sudden and accidental occurrences in the amount of $1 million per occurrence with an annual aggregate of $2 million exclusive of legal defense costs. An originally signed certificate of liability insurance has been sent to the Regional Administrator by certified mail. The certificate is worded as specified in 40 CFR 264.151(g).

I-8b Nonsudden Insurance [40 CFR 264.147(b), 264.151(i), and 264.151(j)]

Tankopile is a storage facility, therefore, no liability insurance is required for a nonsudden accidental occurrence.

I-8c Financial Test [40 CFR 264.147(f) and 264.151(j)]

Tankopile has an insurance policy for sudden and accidental occurrences, therefore, the financial test is not necessary.

I-8d Variance Procedures [40 CFR Section 264.147(c)]

Tankopile will not request the Regional Administrator for a reduction of liability amounts.

I-8e Adjustment Procedures [40 CFR Section 264.147(d)]

If the Regional Administrator increases the amounts of liability coverage or elects to improve nonsudden liability coverage requirements, Tankopile will immedi ely seek an adjustment to the insurance policy discussed above.

I-9 State Assumption of Responsibility [40 CFR 264.150]

Tankopile will not request state assumption of the legal or financial responsibilities.

SECTION J

OTHER FEDERAL LAWS

Information will be provided in accordance with the requirements of 40 CFR Part 122.25(a)(20) at the request of the EPA Region I office. At this time, however, we believe this facility is in compliance with the following Federal laws; Wild and Scenic Rivers Act, National Historic Preservation Act of 1966, Endangered Species Act, Coastal Zone Management Act, and the Fish and Wildlife Coordination Act.

CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Date: March 26, 1982 Signature: Mary P. Jones
Mary P. Jones, President

REFERENCES

1. U.S. Department of Commerce. Standard industrial classification manual. 1972 with 1977 supplement.

2. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Environmental Data and Information Service, National Climatic Center, Federal Building, Asheville, North Carolina 28801.

3. U.S. Geological Survey, Topographic Maps. 1100 South Eads Street, Arlington, Virginia 22202.

4. U.S. Geological Survey, Topographic Maps. Box 25286 Federal Center, Denver, Colorado 80225.

5. National Flood Insurance Program. FIA flood maps. P.O. Box 34294, Bethesda, Maryland 20034.

6. Stern, A. C. Air Pollution, Vol. 1, air pollutants, their transformation and transport, 1976.

7. Water Resources Council. Guidelines for determining flood flow frequency. Bulletin No. 17A. Hydrology Committee. Washington, D.C. 1977.

8. Federal Insurance Administration. The floodway: a guide for community officials. Number 4 in the community assistance series. Federal Emergency Management Agency. September 1979.

9. General Facility Standards for Location of Facilities. Background document; Standards applicable to owners and operators of hazardous waste treatment, storage, and disposal facilities under RCRA, Subtitle C, Section 3004. 40 CFR 264, Subpart B, Section 264.18. December 30, 1980.

10. Office of Coastal Zone Management. National Oceanic and Atmospheric Administration, Department of Commerce, Washington, D.C.

11. Dean. L. F. Floodplain development pressures and federal programs, Part II: Methods used by Federal programs to reduce floodplain development pressures. Research Group, Inc., Atlanta, Georgia. EPA Publication 130/1-79/001B, May 1978.

12. American Petroleum Institute Recommended Rules for Design and Construction of Large, Welded, Low-Pressure Storage Tanks. 6th ed. (current through Revision 2). Standard 620, API 2101 L St., N.W., Washington, D.C. 20037, 1978.

13. American Petroleum Institute. Welded Steel Tanks for Oil Storage. 7th ed. Standard 650.

14. American Water Works Association. Standard for Steel Tanks - Standpipes, Reservoirs, and Elevated Tanks for Water Storage. D100-79. Denver, Colorado, 1979.

15. American Society of Mechanical Engineers. Boiler and Pressure Vessel Code, Section VIII. New York, 1974.

16. Underwriters Laboratories. Standard for Steel Above-ground Tanks for Flammable and Combustible Liquids. 4th ed. Publication UL142. Northbrook, Illinois, 1972.

17. American Society for Testing and Materials. 1981 Annual Book of ASTM Standards, Pressure Vessel (35) Plate and Forging, Part 4.

18. Department of the Army. Flood-Proofing Regulations. EP 1165-2-314. June 1972.

19. Perry, R. H. and C. H. Chilton. Chemical Engineers Handbook. 5th Edition, McGraw-Hill Book Co., 1973.

20. U.S. Department of the Army. Design and construction of levees. 1978.

21. U.S. Bureau of Reclamation. Design of small dams. 1973.

22. Department of the Army. Wall design: floodwalls. 1948. (Note: new edition should be available in fall of 1981.)

23. Tchobanoglous, G. H., Theisen, and R. Eliassen. Solid wastes: enginerring principles and management issues, McGraw-Hill, Inc., New York, New York. 1977.

24. Linsley, R. K., and J. B. Franzinc. Elements of hydraulic engineering. McGraw-Hill Book Company. New York, New York. 1955.

25. Settig, M. Landfill disposal of hazardous wastes and sludges. Noyes Data Corporation. Park Ridge, New Jersey. 1979.

26. American Concrete Institute. ACI Manual of Concrete Practice, Part 2. 1980.

27. Office of Solid Waste Management Programs. Test Methods for evaluating solid waste. Physical/Chemical methods. Environmental Protection Publication SW-846. Washington, U.S. Government Printing Office, 1980.

28. Sax, N. I. Dangerous Properties of Industrial Materials, Van Nostrand Reinhold Co., 1979.

29. National Institute for Occupational Safety and Health. NIOSH/OSHA Occupational health guidelines for chemical hazards, Publication No. 81-123, January 1981.

30. Proctor, N. H., and J. P. Hughes. Chemical hazards of the workplace. 1978.

31. Touhill, Shuckrow and Associates, Inc. Management of hazardous waste leachate. Environmental Protection Publication SW-871. Washington, U.S. Government Printing Office, 1980.

32. Industrial security systems and procedures, book 70-2 of plant protection manual. Plant Engineering. Technical Publishing Co. 1980.

33. National Fire Protection Association (NFPA). Flammable and Combustible Liquids Code. Boston, 1977.

34. National Institute of Occupational Health and Safety. A Guide to Industrial Respiratory Protection. 1976.

35. Fire protection book 70-1 of Plant Protection manual. Plant Engineering. Technical Publishing Co. 1981.

36. Elements of industrial fire control, book 70-5 of plant protection manual. Plant Engineering. Technical Publishing Co. 1980.

37. Schupack, M. How to inspect and evaluate prestressed concrete tanks. Public Works, September 1981. p. 88-89.

38. Valach, D., and A. Gaines. Corrosion monitoring in chlorosolvents plant saves over $60,000 per year. Chemical Processing, March 1981. p. 20.

39. Earley, D. E. Source assessment: Rail tank car, tank truck and drum cleaning - state-of-the-art. Publication EPA-600/2-78-004g. Cincinnati, Ohio, April 1978.

40. California Department of Health Services. Samples and sampling procedures for hazardous waste. Publication EPA-600/2-80-018. January 1980.

41. National Board of Boiler and Pressure Vessel Inspectors. National Board Inspection Code, A manual for boiler and pressure vessel inspectors. 1155 North High Street, Columbus, Ohio. 1973.

42. Matrecon, Inc. Lining of waste impoundment and disposal facilities. Environmental Protection Publication SW-870. Washington, U.S. Government Printing Office, 1980.

43. Tryon, G. H., and G. P. McKinnon. Fire protection handbook, 13th ed. National Fire Protection Association. 1969.

44. Office of Solid Waste Management Programs. Hydrologic simulation on solid waste disposal sites. Environmental Protection Publication SW-868. September 1980.

45. Huibregtse, K. R., et al. Manual for the control of hazardous material spills. Volume I, Spill assessment and water treatment techniques. Publication EPA-600/2-77-227. 1977.

46. OSHA Standards, 29 CFR 1910.

47. U.S. Army Engineer Waterways Experiment Station. Guide to the disposal of chemically stabilized and solidified waste. Environmental Protection Publication SW-872. Environmental Laboratory. Washington, U.S. Government Printing Office, 1980.

48. National Fire Protection Association. Fire protection guide on hazardous materials. 6th ed. 1975.

49. U.S. Environmental Protection Agency. A method for determining the compatibility of hazardous waste. Publication EPA-600/2-80-076. Cincinnati, Ohio, April 1980.

50. Robinson, J. S., Hazardous chemical spill cleanup, Noyes Data Corporation, Park Ridge, N.J., 1979.

51. Environmental Protection Agency Background document - Listing of hazardous wastes. (40 CFR 261) Sections 261.31 and 261.32, and its Appendix A. Health and Environmental Effect Profiles.

52. Weiss, G. Hazardous chemicals data book. Noyes Data, 1981.

53. Smith, A. J., Jr., Managing hazardous substances accidents. McGraw-Hill Book Company, 1981.

54. Acurex Corporation and Metcalf & Eddy, Inc. Closure of hazardous waste surface impoundments. Environmental Protection Publication SW-873. Washington, U.S. Government Printing Office, 1980.

55. Bureau of Law and Business, Inc. Employer's handbook of hazardous waste training programs. Stamford, Connecticut 1982.

56. Southwest Research Institute, Department of Special Studies. Technical Resource Documents - Land Disposal and Other Facilities.

57. American Petroleum Institute. Guide for inspection of refinery equipment, chapter 5, third edition. December 1978. Washington, D.C.

58. National Fire Protection Association. Cleaning small tanks and containers. NFPA No. 327, 1975. Boston, Massachusetts.

59. Financial Assurance for closure and post-closure care: requirements for owners or operators of hazardous waste treatment, storage or disposal facilities. Guidance Document. ICF, Inc., SW-955. May 1982.

APPENDIX A

GENERAL INFORMATION AND HAZARDOUS CHARACTERISTICS OF WASTES

Excerpted from: Dangerous
Properties of Industrial
Materials, Fourth Edition, 1975
by N. Irving Sax

HYDROCHLORIC ACID

General Information

Synonyms: muriatic acid; chlorohydric acid; hydrogen chloride.

Colorless gas or colorless, fuming liquid; strongly corrosive.

Formula: HCl.

Mol wt: 36.47, mp: −114.3°C, bp: −84.8°C, d: 1.639 g/liter (gas) at 0°C; 1.194 at −26°C (liquid), vap. press.: 4.0 atm at 17.8°C.

Hazard Analysis

Toxic Hazard Rating:
- Acute Local: Irritant 3.
- Acute Systemic: Ingestion 3; Inhalation 3.
- Chronic Local: Irritant 2.
- Chronic Systemic: U.

Toxicology: Hydrochloric acid is an irritant to the mucous membranes of the eyes and respiratory tract, and a concentration of 35 ppm causes irritation of the throat after short exposure. Concentrations of 50 to 100 ppm are tolerable for 1 hour. More severe exposures result in pulmonary edema, and often laryngeal spasm. Concentrations of 1,000 to 2,000 ppm are dangerous, even for brief exposures. Mists of hydrochloric acid are considered less harmful than the anhydrous hydrogen chloride, since the droplets have no dehydrating action. In general, hydrochloric acid causes little trouble in industry, other than from accidental splashes and burns. It is used as a general purpose food additive (Section 10). It is a common air contaminant.

Disaster Hazard: Dangerous; see chlorides; will react with water or steam to produce toxic and corrosive fumes.

VINYL ACETATE

General Information

Colorless, mobile liquid, polymerizes to solid on exposure to light.

Formula: $CH_3COOCHCH_2$.

Mol wt: 86.05, mp: −100.2°C, bp: 73°C, flash p.: 18°F, d: 0.9335 at 20°C, autoign. temp.: 800°F, vap. press.: 100 mm at 21.5°C, lel = 2.6%, uel = 13.4%, vap. d.: 3.0.

Hazard Analysis

Toxic Hazard Rating:
- Acute Local: Irritant 1.
- Acute Systemic: Inhalation 1.
- Chronic Local: Irritant 1.
- Chronic Systemic: U.

Toxicology: May act as a skin irritant by its defatting action. High concentrations of vapor are narcotic but are formed only if an inhibitor is present.

Fire Hazard: Highly dangerous when exposed to heat or flame.

Spontaneous Heating: No.

Explosion Hazard: Unknown.

Disaster Hazard: Dangerous; when heated to decomposition, it burns and emits acrid fumes; can react with oxidizing materials.

α-TRICHLOROETHANE

General Information

Synonyms: 1,1,1-trichloroethane; methyl chloroform.

Colorless liquid.

Formula: CH_3CCl_3.

Mol wt: 133.42, bp: 74.1°C, fp: −32.5°C, flash p.: none, d: 1.3492 at 20°/4°C, vap. press.: 100 mm at 20.0°C.

Hazard Analysis

Toxic Hazard Rating:
- Acute Local: Irritant 1; Ingestion 1.
- Acute Systemic: Inhalation 2.
- Chronic Local: Irritant 1.
- Chronic Systemic: Ingestion 1; Inhalation 1.

Toxicity: Narcotic in high concentrations.

Disaster Hazard: Dangerous; See chlorides.

VINYL CHLORIDE

General Information

Synonyms: chloroethylene; chloroethene.

Colorless liquid or gas (when inhibited); faintly sweet odor.

Formula: CH_2CHCl.

Mol wt: 62.50, bp: −13.4°C, lel = 4%, uel = 22%, flash p.: −108°F (C.O.C.), bp: −13.9°C, fp: −159.7°C, d liquid: 0.9195 at 15°/4°C, vap. press.: 2600 mm at 25°C, vap. d.: 2.15, autoign. temp.: 882°F.

Hazard Analysis

Toxic Hazard Rating:
- Acute Local: Irritant 2.
- Acute Systemic: Inhalation 2.
- Chronic Local: Irritant 2.
- Chronic Systemic: Inhalation 3.

Toxicology: In high concentrations it acts as an anesthetic. Causes skin burns by rapid evaporation and consequent freezing. Chronic exposure has shown liver injury in rats and rabbits. Circulatory and bone changes in the finger tips reported in workers handling unpolymerized materials. A recognized carcinogen (Section 8), of the liver.

Caution: May cause local irritation or frostbite due to rapid evaporation from skin or tissues.

Fire Hazard: Dangerous, when exposed to heat or flame. Large fires of this material are practically inextinguishable.

Spontaneous Heating: No.

Explosion Hazard: Severe, in the form of vapor when exposed to heat or flame.

Disaster Hazard: Very dangerous; when heated to decomposition, it emits highly toxic fumes of phosgene; can react vigorously with oxidizing materials. Before storing or handling this material instructions for its use should be obtained from the supplier.

TOXIC HAZARD RATING CODE (For detailed discussion, see Section 9.)

- 0 NONE: (a) No harm under any conditions; (b) Harmful only under unusual conditions or overwhelming dosage.
- 1 SLIGHT: Causes readily reversible changes which disappear after end of exposure.
- 2 MODERATE: May involve both irreversible and reversible changes not severe enough to cause death or permanent injury.
- 3 HIGH: May cause death or permanent injury after very short exposure to small quantities.
- U UNKNOWN: No information on humans considered valid by authors.

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LEAD

General Information

Synonym: plumbum

Bluish-gray, soft metal

Formula: Pb

At wt: 207.21, mp: 327.43°C, bp: 1620°C, d: 11.288 at 20°/20°C, vap. press.: 1 mm at 973°C.

Hazard Analysis

Toxic Hazard Rating

Acute Local: 0.

Acute Systemic: Inhalation 3.

Chronic Local: 0.

Chronic Systemic: Ingestion 3; Inhalation 3.

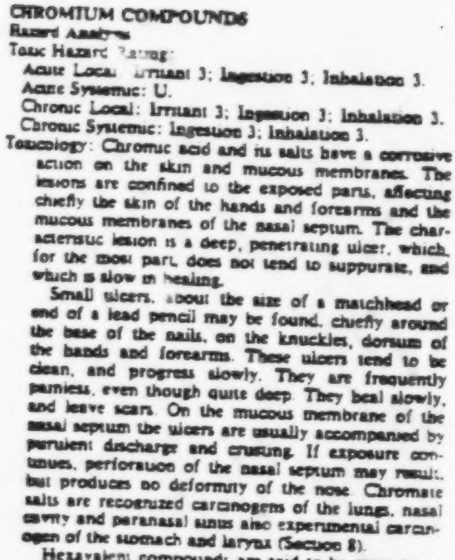
Toxicology: See lead compounds. A common air contaminant. It is a suspected carcinogen of the lungs and kidney (Section 8).

Radiation Hazard: For permissible levels, see Section 5, Table 5. Artificial isotope ^{203}Pb, T½ = 52h. Decays to stable ^{203}Tl by electron capture. Emits γ's of 0.40 MeV and X-rays. Natural isotope ^{210}Pb (Radium-D, Uranium Series), T½ = 21y. Decays to radioactive ^{210}Bi by emitting β's of 0.015 (81%), 0.061 (19%) MeV. Also emits γ's of 0.046 MeV. ^{210}Pb usually exists in equilibrium with its daughters ^{210}Bi and ^{210}Po. Natural isotope ^{212}Pb (Thorium-B, Thorium Series), T½ = 10.6h. Decays to radioactive ^{212}Bi by emitting β's of 0.16 (5%), 0.34 (81%), 0.58 (14%) MeV. Also emits γ's of 0.24, 0.30 MeV and X-rays.

Fire Hazard: Moderate, in the form of dust when exposed to heat or flame. See also powdered metals.

Explosion Hazard: Moderate, in the form of dust when exposed to heat or flame.

Disaster Hazard: Dangerous; when heated it emits highly toxic fumes; can react vigorously with oxidizing materials.



CHROMIUM COMPOUNDS

Hazard Analysis

Toxic Hazard Rating:

Acute Local: Irritant 3; Ingestion 3; Inhalation 3.
Acute Systemic: U.
Chronic Local: Irritant 3; Ingestion 3; Inhalation 3.
Chronic Systemic: Ingestion 3; Inhalation 3.

Toxicology: Chromic acid and its salts have a corrosive action on the skin and mucous membranes. The lesions are confined to the exposed parts, affecting chiefly the skin of the hands and forearms and the mucous membranes of the nasal septum. The characteristic lesion is a deep, penetrating ulcer, which, for the most part, does not tend to suppurate, and which is slow in healing.

Small ulcers, about the size of a matchhead or end of a lead pencil may be found, chiefly around the base of the nails, on the knuckles, dorsum of the hands and forearms. These ulcers tend to be clean, and progress slowly. They are frequently painless, even though quite deep. They heal slowly, and leave scars. On the mucous membrane of the nasal septum the ulcers are usually accompanied by purulent discharge and crusting. If exposure continues, perforation of the nasal septum may result, but produces no deformity of the nose. Chromate salts are recognized carcinogens of the lungs, nasal cavity and paranasal sinus also experimental carcinogen of the stomach and larynx (Section 8).

Hexavalent compounds are said to be more toxic than the trivalent. Eczematous dermatitis due to trivalent chromium compounds has been reported.

LEAD COMPOUNDS

Hazard Analysis

Toxic Hazard Rating:

Acute Local: 0.

Acute Systemic: **Ingestion 3; Inhalation 3**

Chronic Local: 0.

Chronic Systemic: Ingestion 3, Inhalation 3, Skin Absorption 3

Toxicology: Lead poisoning is one of the commonest of occupational diseases. The presence of lead-bearing materials or lead compounds in an industrial plant does not necessarily result in exposure on the part of the workman. The lead must be in such form, and so distributed, as to gain entrance into the body or tissues of the workman in measurable quantity, otherwise no exposure can be said to exist. It is a suspected carcinogen of the lungs and kidneys (Section 8).

Mode of entry into body:

1. By inhalation of the dusts, fumes, mists or vapors. (Common air contaminants)

2. By ingestion of lead compounds trapped in the upper respiratory tract or introduced into the mouth on food, tobacco, fingers or other objects.

3. Through the skin; this route is of special importance in the case of organic compounds of lead, as lead tetraethyl. In the case of the inorganic forms of lead, this route is of no practical importance.

Physiological Action and Toxicity: When lead is ingested, much of it passes through the body unabsorbed, and is eliminated in the feces. The greater portion of the lead that is absorbed is caught by the liver and excreted, in part, in the bile. For this reason, larger amounts of lead are necessary to cause poisoning if absorption is by this route, and a longer period of exposure is usually necessary to produce symptoms. On the other hand, when lead is inhaled, absorption takes place easily from the respiratory tract and symptoms tend to develop more quickly. From the point of view of industrial poisoning, inhalation of lead is much more important than is ingestion.

Lead is a cumulative poison. Increasing amounts build up in the body and eventually a point is reached where symptoms and disability occur.

Lead produces a brittleness of the red blood cells so that they hemolyze with but slight trauma; the hemoglobin is not affected. Due to their increased fragility, the red cells are destroyed more rapidly in the body than normally, producing an anemia which is rarely severe. The loss of circulating red cells stimulates the production of new young cells which, on entering the blood stream, are acted upon by the circulating lead, with resultant coagulation of their basophilic material. These cells after suitable staining, are recognized as "stippled cells." As regards the effect of lead on the white blood cells, there is no uniformity of opinion. In addition to its effect on the red cells of the blood, lead produces a damaging effect on the organs or tissues with which it comes in contact. No specific or characteristic lesion is produced. Autopsies of deaths attributed to lead poisoning and experimental work on animals, have shown pathological lesions of the kidneys, liver, male gonads, nervous system, blood vessels and other tissues. None of these changes, however, have been found consistently.

In cases of lead poisoning, the amount of lead found in the blood is frequently in excess of 0.07 mg per 100 cc of whole blood. The urinary lead excretion generally exceeds 0.1 mg per liter of urine.

The toxicity of the various lead compounds appears to depend upon several factors: (1) the solubility of the compound in the body fluids; (2) the fineness of the particles of the compound, solubility is greater, of course, in proportion to the fineness of the particles; (3) conditions under which the compound is being used; where a lead compound is used as a powder, contamination of the atmosphere will be much less where the powder is kept damp. Of the various lead compounds, the carbonate, the monoxide and sulfate are considered to be more toxic than metallic lead or other lead compounds. Lead arsenate is very toxic due to the presence of the arsenic radical.

Signs and Symptoms: Industrial lead poisoning commonly occurs following prolonged exposure to lead or its compounds. The common clinical types of lead poisoning may be classified according to their clinical picture as (a) alimentary, (b) neuromotor, and (c) encephalic. Some cases may show a combination of clinical types. The alimentary type occurs most frequently, and is characterized by abdominal discomfort or pain. Severe cases may present actual colic. Other complaints are constipation and/or diarrhea, loss of appetite, metallic taste, nausea and vomiting, lassitude, insomnia, weakness, joint and muscle pains, irritability, headache and dizziness. Pallor, lead line on the gums, pyorrhea, loss of weight, abdominal tenderness, basophilic stippling, anemia, slight albuminuria, increased urinary excretion, and an increase in the lead content of the whole blood, are signs which may accompany the above symptoms.

In the neuromuscular type, the chief complaint is weakness, frequently of the extensor muscles of the wrist and hand, unilateral or bilateral. Other muscle groups which are subject to constant use may be affected. Gastroenteric symptoms are usually present, but are not as severe as in the alimentary type of poisoning. Joint and muscle pains are likely to be more severe. Headache, dizziness and insomnia are frequently prominent. True paralysis is uncommon, and usually is the result of prolonged exposure.

Lead encephalopathy is the most severe but the rarest manifestation of lead poisoning. In the industrial worker it follows rapid and heavy lead absorption. Organic lead compounds, such as tetraethyl lead, are absorbed rapidly through the skin as well as through the lungs, and are selectively absorbed by the central nervous system. The clinical picture in these cases is usually an encephalopathy. With inorganic lead compounds, comparable concentrations in the central nervous system are reached only when the workplace is heavily contaminated with vapor, fume and dust. Encephalopathy begins abruptly, and is characterized by signs of cerebral and meningeal involvement. There is usually stupor, progressing to coma, with or without convulsion, and often terminating in death. Excitation, confusion and mania are less common. In milder cases of short duration, there may be symptoms of headache, dizziness, somnolence and insomnia. The cerebrospinal pressure may be increased. See also specific compound.

Diagnosis: A diagnosis of lead poisoning should not be made on the basis of any single clinical or laboratory finding. There must be a history of significant exposure, signs and symptoms (as described above) compatible with the diagnosis, and confirmatory laboratory tests. Increase of stippled red blood cells, mild anemia, and elevated lead in blood and urine, i.e., more than 0.07 mg/100 ml blood and similar values per liter of urine. An increase of coproporphyrins and certain amino acids in urine may be present. Diagnostic mobilization of lead with calcium EDTA may be useful in questionable cases.

Treatment of Lead Poisoning: It has been found that the chelating agent, calcium ethylenediaminetetracetate, and related compounds are highly efficacious in removing absorbed lead from the tissues of the body. (The therapeutic agents of this group are also known as versene, versenate, edathamil and Ca EDTA.)

Ca EDTA is effective only when administered intravenously. Various dosage schedules have been proposed. An effective regime is 3 to 6 grams of Na Ca EDTA in 300 cc to 500 cc of 5 percent glucose by intravenous drip over a period of 3 to 8 hours. Treatment may be given daily for 5 to 10 days with an interval of one week between courses. Another plan is to give treatment at intervals of 3 to 5 days until deleading has been accomplished.

Disaster Hazard: See lead.

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APPENDIX B

INSPECTION LOG SHEETS

MONITORING EQUIPMENT INSPECTION LOG SHEET

Inspector's name/title ____________ / ____________

Date of Inspection ____________ (month/day/year)

Time of Inspection ____________ (military time)

Item	Types of problems	Status (✓)		Observations	Date and nature of repairs/remedial action
		Acceptable	Unacceptable		
Liquid level transmitters (tanks)	Transmitter signal, electrical circuitry, power				
Conservation vents (tanks)	Spring adjustment or sticking				
Leachate detection, collection, and removal system (waste pile)	Broken pipe or connection, lack of gravel in pipes, clogged holes in pipe, angle of drainage, ground water collected, sump pump failure				
Ground water table control system (waste pile)	Broken pipe or connection, lack of gravel in pipe, clogged holes in pipe, angle of drainage				
Runoff collection and removal system (waste pile)	Broken pipe or connection, lack of gravel in pipe, clogged holes in pipe, angle of drainage, sump pump failure				
Ground water table water meter (located in sump)	Clogging, malfunction of digital display, rotor sticking, wearing of gears				

Figure B-1. Monitoring equipment inspection log sheet.

SAFETY AND EMERGENCY EQUIPMENT INSPECTION LOG SHEET

Inspector's name/title ____________ / ____________

Date of Inspection ____________ (month/day/year)

Time of Inspection ____________ (military time)

Item	Types of problems	Status (✓)		Observations	Date and nature of repairs/remedial action
		Acceptable	Unacceptable		
Standard industrial absorbents (Sorb-All, Vermiculite, etc.)	Out of stock				
Sandbags	Torn or worn				
Sand	Out of stock				
Absorbent boom	Out of stock				
Absorbent pads	Out of stock				
Straw	Out of stock				
Submersible pump	Power, clogging				
Flexible hoses with quick couple fittings	Cracks or holes, fittings stick				
55 gallon drums (steel, stainless steel)	Corrosion, structural damage				
Emergency shower and eyewash	Water pressure, leaking, drainage				
Face shields and extra protection eyeglasses	Broken or dirty equipment				
Disposable respirators	Out of stock				
Chemical cartridge respirators with cartridges for organic vapors and acid gases; half and full face types	Spent chemical adsorbent, seals				

Figure B-2. Safety and emergency equipment inspection log sheet.

Figure B-2(continued)

Item	Types of problems	Status (√)		Observations	Date and nature of repairs/remedial action
		Acceptable	Unacceptable		
Chest-mounted gas mask cannisters	Cannisters become exhausted				
Self-contained breathing apparatus (SCBA)	Air quantity in reserve, air delivery system, moisture in tank (cold weather)				
Portable sump pump	Power, clogging				
Fire blankets	Dispensing				
Fire extinguishers	Needs recharging				
Fire alarm system	Power failure				
Telephone system	Power failure				
Public address system	Power failure, speakers				
Generators	Fuel supply, spark plugs, oil				
Emergency lighting system	Battery failure, lights				
First aid equipment and supplies	Items out of stock or inoperative				
Steam cleaner	Water supply, fuel supply				
Protective clothing (impermeable full-body coveralls, gloves, and foot coverings)	Holes, normal wear and tear				
Decontamination facility (showers, dirty room, clean room)	Water pressure, leaking, drainage, upkeep				

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SECURITY DEVICES INSPECTION LOG SHEET

Inspector's name/title ______________ / ______________

Date of inspection ______________ (month/day/year)

Time of inspection ______________ (military time)

Item	Types of problems	Status (✓)		Observations	Date and nature of repairs/remedial action
		Acceptable	Unacceptable		
Facility fence	Corrosion, damage to chain link fence or barbed wire				
East gate (main entrance)	Corrosion, damage to chain link fence or barbed wire				
West gate and lock	Corrosion, damage to chain link fence or barbed wire, sticking or corroding lock				
Container storage area fence	Corrosion, damage to chain link fence or barbed wire				
Container storage area gate and lock	Corrosion, damage to chain link fence or barbed wire; sticking or corroding lock				
Remote control to east gate	Transmitter or receiver; sticking of gate				
Two-way radios	Transmitter or receiver				

Figure B-3. Security devices inspection log sheet.

OPERATING AND STRUCTURAL EQUIPMENT INSPECTION LOG SHEET

Inspector's name/title ______________ / ______________

Date of inspection ______________ (month/day/year)

Time of inspection ______________ (military time)

Item	Types of problems	Status (✓)		Observations	Date and nature of repairs/remedial action
		Acceptable	Unacceptable		
Sump pumps (automatic)	Setting adjustment, power, clogging				
Sump pumps (manual)	Power, clogging				
Dikes	Cracks, deterioration				
Bases or foundations	Erosion; uneven settlement; cracks and spalling in concrete pads, base rings and piers; deterioration of water seal between tank bottom and foundation, wet spots				
Ramps	Erosion, uneven settlement, cracks and spalling in concrete				
Sump areas	Erosion, uneven settlement, cracks and spalling in concrete, wet spots				
Tank structural supports	Concrete deterioration and cracking, corrosion of pipe supports				
Piping to holding tanks	Loss of metal thickness, leaks, corrosion, or deterioration				
Holding tanks	Corrosion, discoloration, cracks, buckles, and bulges				

Figure B-4. Operating and structural equipment inspection log sheet.

CONTAINER STORAGE AREA INSPECTION LOG SHEET

Inspector's name/title ______________ / ______________
Date of inspection ______________ (month/day/year)
Time of inspection ______________ (military time)

Item	Types of problems	Status (✓)		Observations	Date and nature of repairs/remedial action
		Acceptable	Unacceptable		
Container placement and stacking	Aisle space, height of stacks				
Sealing of containers	Open lids				
Labeling of containers	Improper identification, date missing				
Containers	Corrosion, leakage, structural defects				
Segregation of incompatible wastes	Storage of incompatible wastes in same area				
Pallets	Damaged (e.g., broken wood, warping, nails missing)				
Fence, gate and lock	Corrosion, damage to chain link fence, sticking or corroding lock				
Base or foundation	Cracks, spalling, uneven settlement erosion, wet spots				
Dikes	Cracks, deterioration				
Sump area	Cracks, spalling, uneven settlement erosion, wet spots				
Sump pumps (automatic)	Setting adjustment, power, clogging				

Figure B-5. Container storage area inspection log sheet.

Figure B-5(continued,

Item	Types of problems	Status (✓)		Observations	Date and nature of repairs/remedial action
		Acceptable	Unacceptable		
Debris and refuse	Clog sump pump, aesthetics, possible reaction with leaks				
Ramps	Cracks, spalling, uneven settlement, erosion				
Warnings signs	Damaged				

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TANK STORAGE AREA AND ANCILLARY EQUIPMENT INSPECTION LOG SHEET

Inspector's name/title ________________ / ________________

Date of inspection ________________ (month/day/year)

Time of inspection ________________ (military time)

Item	Types of problems	Status (✓)		Observations	Date and nature of repairs/remedial action
		Acceptable	Unacceptable		
Dike	Cracks, deterioration				
Base or foundation	Cracks, spalling, uneven settlement, erosion, wet spots				
Sump pump (manual)	Power, clogging				
Sump area	Cracks, spalling, uneven settlement, erosion, wet spots				
Warning signs	Damaged				
Pipes	Loss of metal thickness, leaks, corrosion, or deterioration				
Valves	Loss of metal thickness, leaks, corrosion, or deterioration				
Fittings	Loss of metal thickness, leaks, corrosion, or deterioration				
Overfill control valve (manual)	Loss of metal thickness, leaks, corrosion, or deterioration, sticking, damaged handle				

Figure B-6. Tank storage area and ancillary equipment inspection log sheet

EXTERNAL TANK INSPECTION LOG SHEET

Inspector's name/title ____________ / ____________

Date of inspection ____________ (month/day/year)

Time of inspection ____________ (military time)

Item	Types of problems	Status (√) Acceptable	 Unacceptable	Observations	Date and nature of repairs/remedial action
Ladder	Damaged, structural stability				
Foundation/structural supports	Cracks, spalling uneven settlement, erosion, wet spots				
Pipe connections	External corrosion, cracks, distortion				
Protective coating	Rust spots, blisters, film lifting				
Tank shell	Corrosion, discoloration, cracks, buckles, bulges				
Tank roof	Malfunction of seals, blockage of water drains on roof, corrosion				
Tank bottom	Corrosion, discoloration, cracks, buckles, bulges				
Anchor bolts	Distortion, corrosion				
Nozzles	Cracks, corrosion				

Figure B-7. External tank inspection log sheet.

INTERNAL TANK INSPECTION LOG SHEET

Inspector's name/title ______________ / ______________

Date of inspection ______________ (month/day/year)

Time of inspection ______________ (military time)

Item	Types of problems	Status (✓)		Observations	Date and nature of repairs/remedial action
		Acceptable	Unacceptable		
Tank roof	Malfunction of roof's seals, corrosion, loss of metal thickness				
Internal supports	Deterioration, depressions				
Tank shell	Corrosion of vapor space, and liquid level line, cracking, bulges, holes, loss of metal thickness, seams				
Tank bottom	Corrosion pits, sprung seams, rivets, depressions, bottom thickness, unevenness of bottom				
Plate joints	Cracking				
Nozzle connection joints	Cracking				
Glass lining	Cracking, bubbles				
Rivets	Tightness, corrosion				
Pipecoil support	Depressions				

Figure B-8. Internal tank inspection log sheet.

Experience and Qualifications:

- High school diploma
- 2-3 years experience as plant operator with related activities.

  Note: Operator will also be required to maintain and inspect other pollution control equipment on the site.

H-1b Training Content, Frequency, and Technique

The program developed at Tankopile for training employees in the safe handling of hazardous wastes has been organized into a "training manual." Provisions are made for updating or revising the text as necessary to ensure compliance with the terms of the RCRA permit. Each employee has his or her own copy of the manual. An outline of the training manual is shown in Figure 34. This training manual is kept on file at the facility, and is available to EPA officials for review.

During the training program, employees are instructed on (1) the hazardous nature of chemicals and chemical wastes in general, (2) the purpose of RCRA and importance of maintaining compliance with RCRA regulations, (3) the hazardous nature of the wastes being stored in the facility, (4) proper handling and storage procedures for wastes, (5) emergency procedures and contingency plan.

The manual is used as the basis or framework for training Tankopile personnel in the proper procedures, equipment, and systems to be used in managing hazardous wastes.

Preface

1.0 Introduction

    1.1 Chemical hazards
    1.2 The Resource Conservation and Recovery Act - RCRA

2.0 Facility and Process Description

    2.1 Description of wastes to be managed
    2.2 Description of storage facility
    2.3 Key terms of the permit
    2.4 Normal/routine operations
    2.5 Waste analysis
    2.6 Recordkeeping and reporting requirements
    2.7 Security
    2.8 Inspections

3.0 Emergency Procedures and Contingency Plans

    3.1 Emergency coordinator
    3.2 Emergency procedures
    3.3 Emergency communications/phone numbers and alarms
    3.4 Location, maintenance, inspections, and use of emergency equipment
    3.5 Procedures for waste feed cutoff systems
    3.6 Spill control and response to groundwater contamination incidents
    3.7 Fires and explosions
    3.8 Power interruption or failure
    3.9 Tornadoes, hurricanes, and severe storms

Appendix A Summary of RCRA Regulations for Hazardous Waste Storage Facilities

Appendix B Summary of Conditions Specific in Tankopile's RCRA Permit

Appendix C Training Programs in Hazardous Waste Management

Figure 34. Outline of Hazardous Waste Training Manual.

For key personnel, Tankopile plans to supplement the training outlined in the manual with attendance at one or more technical seminars or training programs on hazardous materials. A list of such seminars or programs is included in Appendix C of the training manual.

A brief description of each section of the training manual follows:

Section 1 - Introduction

This section of the manual introduces Tankopile employees to the general classes and characteristics of chemicals and chemical wastes that can be hazardous to health and property. In this context, the terms toxicity, reactivity, corrosivity, and ignitability are defined. It is Tankopile's policy that each employee handling chemical substances (raw materials, finished products, byproducts, and wastes) respect them and be aware of these potential hazards. The company's policy on the use of protective clothing and safety equipment to prevent accidental worker exposures and releases to the environment of hazardous chemicals and wastes is introduced.

The authority for regulating hazardous wastes under the Resource Conservation and Recovery Act (RCRA) also is discussed. The regulatory framework for classifying hazardous wastes, setting operational standards, and permitting procedures and achieving compliance is explored. The RCRA permit for Tankopile (once it is received) will also be studied to be sure that each employee is familiar with its terms.

Section 2 - Storage of Hazardous Wastes at Tankopile

This section focuses on the types of hazardous wastes that are handled and stored at Tankopile, normal/routine storage operations, and procedures for maintaining compliance with the RCRA permit (e.g., waste analysis, recordkeeping, inspections, and security). A site diagram showing the dimensions, capacity, and relative position of each storage area (tanks, containers, and piles) is included.

Training for normal or routine operating conditions includes the following topics:

- Proper operation and maintenance of the storage facility
- Scheduled inspections
- Purpose and use of security and communications systems
- Monitoring requirements for tracking and recording the operation of the facility
- Recordkeeping requirements and procedures

Section 3 - Emergency and Contingency Plans

The third section of the training manual provides detailed instruction on steps to be taken in the event of an emergency such as a waste spill or fire, power outage, or damage from wind and storms. The emergency coordinator is clearly identified, as are emergency phone numbers and directions for locating and using onsite emergency equipment, alarms, and communications. Contingency plans are also detailed.

This manual is used in classroom training for both introductory training and annual review. All personnel involved with hazardous waste are required to complete 20 hours of classroom training in addition to 6 weeks on-the-job training. Also personnel receive an 8-hour classroom review training session once a year. This is supplemented with attendance by the environmental engineer at seminars and conferences involving hazardous waste management.

H-1c Training Director

The personnel training program is directed by Mr. John Q. Smith, the plant Environmental Engineer. Mr. Smith has been with Tankopile for 10 years. He received a M.S. degree in Environmental Engineering from the University of Cincinnati in 1971. He has been trained in all aspects of Hazardous Waste Management and attended various seminars on this subject. Records of his previous and ongoing training are kept on file at the personnel office.

H-1d Relevance of Training to Job Position

Mr. John Q. Smith, the plant Environmental Engineer, is responsible for teaching hazardous waste management procedures, including contingency plan implementation, to all waste handling personnel. The training program is tiered (Figure 35) in some areas to provide training to personnel at levels that are relevant to their positions within the

	Personal safety	Release prevention and response	Contingency plan	Emergency procedures	Hazardous waste management and practices	Record keeping	Hazardous waste handling and operations
Environmental Engineer	B	B	B	B	B	B	B
Environmental Operations Foreman	B	B	B	B	B	L	B
Operators	B	B	L	B	L	L	B

B = broad instruction
L = limited instruction

Figure 35. Level of training for hazardous waste personnel.

[illegible] receives training in recordkeeping and other procedures required for compliance, whereas the operators do not. Operators are more specifically trained to maintain proper and safe operating procedures and to respond effectively in the event of a spill or other emergency.

H-1e Training for Emergency Response

This training program is designed to ensure that personnel not only handle hazardous wastes in a safe manner but also properly respond to emergency situations. The program trains hazardous waste handling/management personnel to maintain compliance under both normal operating conditions and emergency conditions.

Training elements addressing nonroutine and emergency situations (unscheduled shutdowns and startups related to storms, power outages, fires, explosions, spills) include:

- Procedures for locating, using, inspecting, repairing, and replacing facility emergency and monitoring equipment
- Key procedures for automatic waste feed cutoff systems
- Emergency communication procedures and alarm systems
- Response to fires or explosions
- Response to ground water contamination incidents and procedures for containing, controlling, and mitigating spills
- Shutdown of operations and power failure procedures
- Procedures for evacuation of nearby areas

In addition to the hazardous waste management personnel, a company fire brigade is on standby for response to all fires and other general plant emergencies. This fire brigade is trained both with classroom training methods and fire drills. The classroom training is required for introductory training and as an annual review for each member assigned to the fire brigade. The fire brigade training is not addressed in the hazardous waste training manual. For more information contact Tankopile's safety officer, George Shoe at 555-6790. The fire drills occur at a minimum of six times a year and are unannounced.

H-2 Implementation of Training Program

The director of the training program and all current waste-handling personnel have been fully trained at the time of this submittal. In the future, all new personnel will complete this training program within 6 months of assignment to the hazardous waste storage facility or within 6 months of their date of employment, whichever is later. No employee hired to work at this facility will work unsupervised prior to completion of the training program.

Employees are required to meet annually for review and update of this training program and to discuss and study the following subjects:

1) All hazardous wastes currently being handled at the facility, noting any changes in waste type, volume, source, characteristics, or location that have occurred during the past year.

The status of storage and operating conditions and procedures, noting any areas where there are problems or potential for problems. Employees participate in developing effective solutions.

3) The requirements contained in the facility's RCRA permit, noting any changes that have occurred during the past year. Areas where maintenance of compliance is a problem are identified and discussed, and effective solutions are sought.

4) Incidents that have occurred in the past year that warranted use of contingency plans and/or emergency action. This review focuses on the cause of the incident and identification of steps to be taken to prevent or to ensure better handling of such events in the future.

The annual review will also utilize the facility's annual report to EPA as a working document for the review.

Records documenting the job title for each position, job descriptions, names of employees, and completed training programs (both introductory and review) will be kept onsite in the personnel office of Tankopile Finishing Company. These records will be kept until closure of the facility for current employees and for 3 years from the date of the individual employee's termination for former employees.

SECTION I

CLOSURE PLAN, POST-CLOSURE PLAN, AND FINANCIAL REQUIREMENTS

This Section is submitted in accordance with the requirements of 40 CFR §122.25(a)(13), §264.112 through 115, §264.178, §264.197, and §264.258. This plan identifies all steps that will be necessary to partially close the facility at any point during its intended operating life and to completely close the facility at the end of its intended operating life. The plan also addresses the conditions and reasons under which partial closure will occur. A post-closure plan is not required because this is not a disposal facility and all wastes are being removed at closure

Tankopile will maintain an onsite copy of the approved closure plan and all revisions to the plan until the certification of closure completeness has been submitted and accepted by EPA, Region I. The Tankopile owner will notify the Regional Administrator at least 180 days prior to the date we expect to begin final closure. The closure date for closure of the entire facility will be 2002. Upon completion of closure, the Tankopile owner will submit to the Regional Administrator a certification by both the Tankopile owner and by a local independent registered professional engineer that the facility has been closed in accordance with the specifications in the approved closure plan.

I-1 [illegible]

I-1a Closure Performance Standard [40 CFR 264.111]

This closure plan was designed to ensure that the facility will not require further maintenance and controls, minimizes or eliminates threats to human health and the environment, and avoids escape of hazardous waste, hazardous waste constituents, leachate, contaminated rainfall, or waste decomposition products to the ground or surface waters or to the atmosphere. If there is evidence of any spills or leaks, samples will be taken and analyzed to determine the extent of contamination in the soil and if necessary, in groundwater. Any contaminated soil will be excavated, removed, and disposed of at a proper disposal facility. Any contaminated groundwater will be remedied. The entire site will be regraded subsequent to closure to prevent erosion. The following sections discuss in detail efforts to be made at Tankopile to satisfy the closure performance standard.

I-1b Partial and Final Closure Activities

Tankopile expects to perform partial closure when we remove our waste pile from its current location in the eastern portion facility to a new location in the northern portion facility. Final closure activities on the waste pile will occur in 1982. Our procedures for final closure of the waste pile, including waste removal, cleanup and decontamination activities, are described in Section I-1d(3) of the closure plan. Partial closure of the container storage and tank storage operations are not planned. However, in the event that future circumstances or decisions force us to discontinue our hazardous waste tank storage or hazardous waste container storage activities, Sections I-1d(2) and I-1d(1) of the closure plan present our procedures for final closure of each of the two storage areas. Any modifications to our existing facility equipment, structures, instruments or procedures related to the management of the three distinct portions of the facility will result in Tankopile updating the partial closure plan, and revising the closure plan accordingly.

At a maximum we expect the operation to consist of storage of 100 drums, 2 tanks and 1 waste pile during the life of the facility. Section I-1c of the closure plan describes the maximum inventory of wastes in storage at any given time during the operating life of Tankopile. Tankopile will secure permission to dispose of its wastes and enter into contractual agreements with XTC (an off-site surface impoundment) and the PEI hazardous waste landfill.

I-1c Maximum Waste Inventory

The following table shows the maximum inventory of wastes in storage at any given time during the operating life of Tankopile for 1 waste pile, 100 containers, and 2 tanks.

Waste pile:	
metal hydroxide sludge	50 yd^3
	50 yd^3 total
Containers:	
metal grindings	1870 gal
vinyl acetate sludge	605 gal
vinyl chloride sludge	605 gal
pickle liquor sludge	2420 gal
	5500 gal total
Tanks:	
pickle liquor	7500 gal
1,1,1-trichloroethane	7500 gal
	15000 gal total

I-1d Inventory Removal and Disposal or Decontamination of Equipment

Following waste removal, all piping to and from the two storage tanks will be disconnected, dismantled and decontaminated. The work will be supervised and performed using qualified Tankopile personnel. Personnel will be equipped with acid/solvent resistant coveralls (olefin material, coated with heavy polyethylene film), head protection, neoprene-coated gloves and boots resistant to solvents and acids. Both the wrists and ankles will be taped (electrical tape) to protect against upward and inward splash. Full face respirators with organic vapor and acid gases filter cartridges that seal directly to the mask will be used. Chemical neutralizers and spill control pillows will be employed in the event of any spills resulting from pipe drainage during the disconnection and dismantling process. Spill saturated spill control pillows will be placed in a 55-gallon polyethylene-lined, steel recovery drum located at the dismantling area for temporary storage.

Since contact of hydrochloric acid with some metals produces explosive hydrogen gas, extreme caution will be taken to utilize non-sparking tools and equipment during all cleanup and decontamination activities. Strict supervision will include provision for no open flames, hot surfaces, or smoking to be present in and surrounding the work areas.

The 3-in lines which transport the waste from the plant to the storage tanks will be dismantled. Positive displacement pumps, used to pump the wastes to tankers, and valves will be disconnected. In cases when it is difficult to remove all liquid or solid residues as these residues may be trapped behind heavy scale or rust or may be too viscous for pumping, the pipes, valves, pumps, dump trucks, and forklift trucks will be steam-cleaned to remove the residues. All contaminated wash waters, generated as a result of the steam-cleaning process, will be pumped by a positive displacement pump into a tanker truck and transported to the XTC facility (an off-site surface impoundment) located 30 miles from Tankopile in Kranville, Rhode Island (EPA I.D. Number RI0000020000).

Soils in the facility are not expected to be contaminated by the waste storage at Tankopile. However, the possibility of contamination occurring during the dismantling and cleaning of equipment and structures exists. An allowance has been made in the closure costs for removal and disposal of approximately 10 yd^3 using a front-end loader. If evidence of possible areas of soil contamination (in the form of soil discoloration or odor) exists, a soil sampling program will be instituted to determine the extent of soil contamination in those areas. At least one soil sample will be taken from the waste pile area (after removal of the liner) and one sample near the container storage area, where unloading operations occur. Augor soil borings with collected samples will be transported to a laboratory with GC/MS and atomic absorption capabilities. If contamination is found in the soil, those areas will be excavated to the depth at which no contamination is detected. All soils, contaminated equipment to be disposed, and solid residues will be loaded and transported by truck to the PEI landfill located 10 miles east of this facility in Newburg, Rhode Island (EPA I.D. Number RI0000010000).

Prior to leaving any of the site locations undergoing decontamination, decontamination of personnel protective clothing will be conducted by removing all bulk material from the boots and spraying, washing, and scrubbing with detergent solution all outside protective clothing materials as well as exposed skin surfaces (i.e., facial area).

I-1d(1) Closure of Containers

All the drum containers in the Tankopile container storage area will first be removed for transport to the PEI landfill. Because of the incompatibility of the types of wastes, the corrosive sludge drums, toxic metal grindings drums, and ignitable sludges drums will each be transported along with the pallets on separate truck trips to the landfill. The drums will be moved utilizing a forklift.

The container storage area will then be decontaminated with a series of solvent washes and all waste water and residues generated will be collected in the sumps and pumped to the holding tanks for immediate analysis and, if laboratory analysis indicates that the waste is hazardous, the material will be pumped from the holding tanks into tanker trucks and sent for off-site disposal at the XTC surface impoundment. If laboratory analysis shows no evidence of contamination, waste water and residues in the holding tanks will be discharged to the sewer system. The automatic sump pumps in each of the sump areas will then be removed and decontaminated as described in Section I-1d.

Approximately 550 gallons of waste water and residue are anticipated to result from the container storage area decontamination process.

I-1d(2) Closure of Tanks

The final spent hydrochloric acid waste load stored in the tank is pumped to a tanker (by use of a positive displacement pump) and transported to the local publicly owned treatment works (POTW) for treatment. The 1,1,1-trichloroethane solvent is pumped to a tanker in a similar manner, and the waste is transported to a reclamation facility.

1,1,1-trichloroethane, upon contact with acid or acid fumes, can evolve highly toxic chloride fumes and HCl may react with water or steam to produce toxic and corrosive fumes. For safety considerations due to the proximity of the two tanks to each other, Tankopile elects not to perform dismantling, cleaning and decontamination of the two tanks and associated piping concurrently, but in a sequential manner. Using properly qualified Tankopile personnel protected as described in I-1d, the following procedures will be used to decontaminate each of the two tanks:

First, the waste outlet valve will be opened to allow waste residuals remaining on the bottom to drain from the tanks. The waste will be drained from the tanks into 55-gallon polyethylene-lined, steel recovery drums located directly beneath the outlet. When filled, the drums will be sealed and sent off-site by truck to the PEI landfill for disposal. The waste outlet valve will then be closed.

A 2,000 gallon-per-hour steam cleaning unit (capable of washing a 16,000-gallon area of storage capacity/hour) will be rented to decontaminate the tanks. This process will generate residues in the form of contaminated wash waters. The waste outlet valve will again be opened and contaminated wash waters will be drained into 55-gallon steel recovery drums, sealed, and sent off-site by truck to the XTC surface impoundment for disposal. Approximately 2000 gallons of contaminated wash waters are anticipated to be generated during the steam cleaning of all tanks and equipment.

All the ancillary equipment associated with the tank will be detached from the tank. The equipment to be disconnected includes the nozzle for the level transmitter, piping inlets and piping exits. The pipes will be decontaminated by steam cleaning. Any visible spills or leakage detected during the disconnection process will immediately be remedied by spill saturation pillows, as discussed in Section I-1d.

To assess whether the tank steam cleaning process has been successful for the 1,1,1-trichloroethane storage tank, a member of the clean-up team will enter the tank with full protective gear and a combustible gas/oxygen detector. The team member will assess the hazard of the tank by local diffusion measurement of the percent of lower explosive limit of any residual 1,1,1-trichloroethane vapor in the tank. The detected presence of measured oxygen levels below 19.5%, or of combustible gas will result in rewashing the tank. For the HCl tank, litmus paper will be used for sampling the pH of the last drainage wash water. A neutral pH reading will indicate decontamination is complete.

Next, the concrete slab supporting the tank will be steam cleaned. The tank will then be dismantled from the foundation structure supports and either sold for scrap or resold.

[illegible] Closure of Waste Pile

The waste pile presently located in the northeastern section of the facility will be removed by June 1982. Closure of the waste pile will involve removal of the metal hydroxide sludge from the waste pile area. Tankopile personnel dressed in protective equipment described in Section I-1d will participate in the closure of the pile. Due to the design of the containment system of our waste pile storage area, the 2'6" of sand and the 1'6" of pea gravel underlying the pile must be removed since the waste pile has in all probability contaminated these layers. Extra precaution will be taken in removing the pea gravel to avoid damaging the CPE liner and the 4"-thick bentonite layer liner beneath the pea gravel. The waste materials, excavated by a front-end loader, will be loaded onto a dump truck equipped with equipment to avoid release of hazardous material over the sides. The material will be transported to the PEI landfill for disposal.

To avoid contamination of soils surrounding the piping due to cracking or stresses due to excavation, the surface of the bentonite liner will be flushed with water to drain and clean the perforated clay underdrains and remove residual materials from the pipe that goes to the collection sump. Leachate collected in the sump will be pumped into a tanker truck for transport to the XTC surface impoundment. After several flushings in this manner, the clay layer will be excavated with a backhoe and the leachate collection piping system, waste pile underdrains, and the submersible pump will be removed. The materials (except for the pump) will be transported to the PEI landfill for disposal. The pump will be steam cleaned for reuse. Soils in the excavated zone and within the perimeter ditch will be examined for signs of contamination and at least one soil core sample taken, as discussed in Section I-1d. If there is no proven contamination of the area, the excavation will be backfilled with fill soil from local sources and regraded. The collection sump will be backfilled to prevent collection of rainwater and erosion.

I-1e Schedule for Closure

Within 90 days after receipt of the final volume of hazardous wastes, final closure activities will be initiated. Completion of closure will be within 180 days of this occurrence. All financial calculations are based on a closure date in the year 2002. The Regional Administrator will be notified by Tankopile 180 days before beginning final closure. The proposed schedule for closure is shown in Figure 36. Final closure will be supervised and certified by a professional engineer, in addition to the owner or operator.

I-1f Extensions for Closure Time [40 CFR 264.113(a) and 264.113(b)]

Tankopile Finishing Company will not require an extension for closure time.

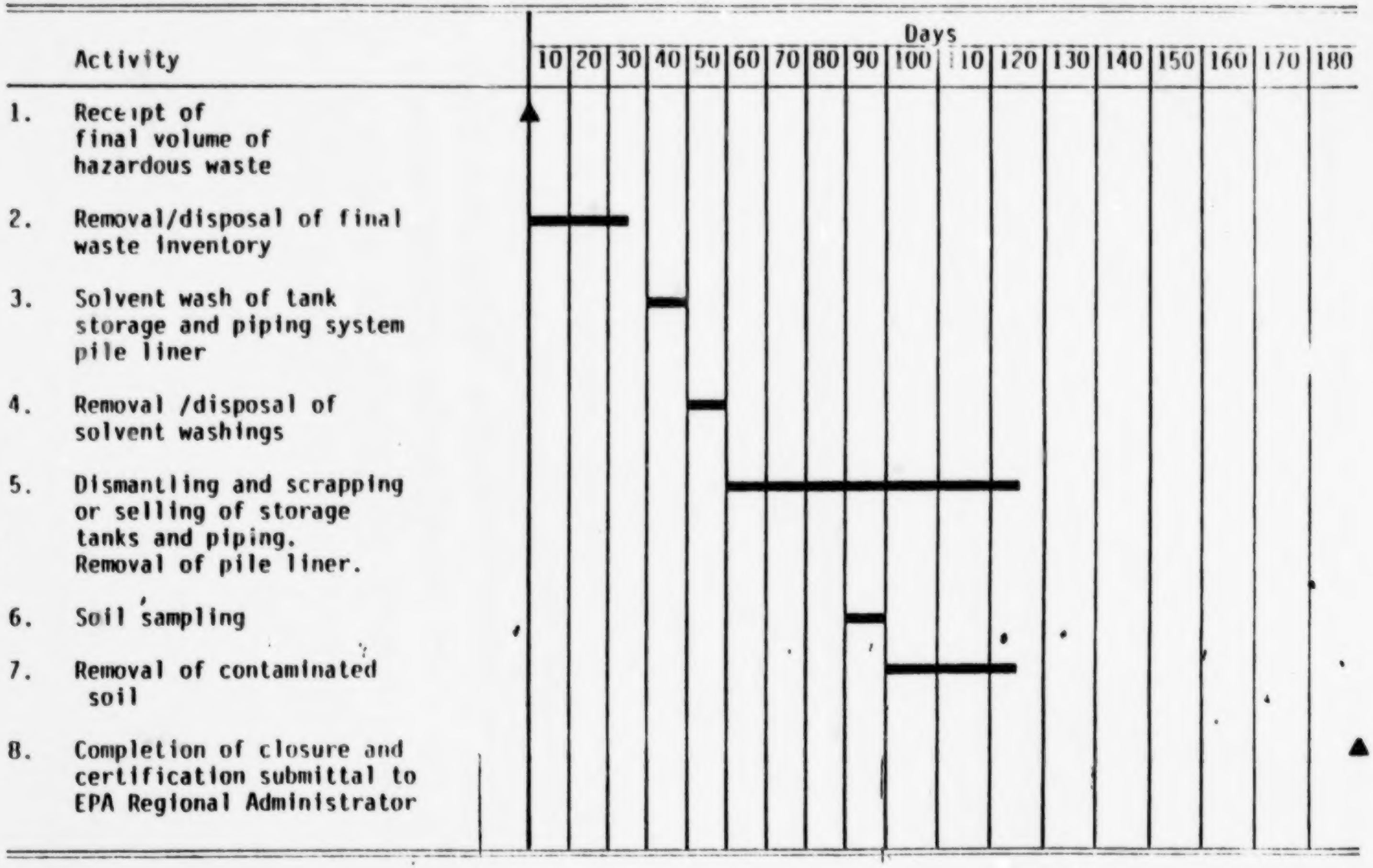

Figure 36. Anticipated closure schedule.

I-2 Post-closure Plans [40 CFR 122.25(a)(13)]

Post-closure care will not be needed for this facility because this is not a disposal facility.

I-3 Notice in Deed and Notice to Local Land Authority [40 CFR 122.25(a)(14)]

Because Tankopile is only a hazardous waste storage facility and not a disposal facility, notation is not necessary in the deed informing potential purchasers of restrictions associated with a disposal site, as required by 40 CFR 264.120.

I-4 Closure Cost Estimate [40 CFR 122.25(a)(15) and 264.142]

The closure cost information presented is submitted in accordance with the requirements of 40 CFR §122.25(a)(15), §264.142, and §264.143.

An estimated $57,500 (March 1982 cost estimate) will be needed to close the Tankopile hazardous waste storage facilities. The closure costs are presented by activity in Table 14. Activities include removal of waste inventory, decontamination, disposal of wash solvents, disposal of contaminated soil, and closure certification.

The assumptions made in the cost estimate are as follows:

1. Removal of final waste inventory. The waste volume is 100 drums of assorted wastes; 7500 gallons of waste HCl, 7500 gallons of waste 1,1,1-trichloroethane, and 50 yd^3 of metal hydroxide sludges. Disposal cost estimates are based on land disposal of the drums and waste pickle liquor, incineration of the waste 1,1,1-trichloroethane.

TABLE 14. CLOSURE COST ESTIMATE[a]

A. Tanks	
1. Removal of final waste inventory	
a. Disposal cost (7,500 gal HCl waste @ $0.10/lb)	$ 6,000
b. Disposal cost (7,500 gal 1,1,1-trichloroethane @ $0.15/lb)	9,000
c. Plant labor (8 h @ $12/h)	96
d. Hauling (2 trips @ $350/trip)	700
Subtotal	$15,000
2. Decontamination of storage tanks, piping, and pipe liner	
a. Solvent (100 gal @ $2/gal)	$ 200
b. Supervision (20 h # $20/h)	400
c. Labor (40 h @ $12/h)	480
d. Dismantling of two 7500-gal tanks and ancillary equipment (80 h @ $12/h)	960
e. Disposal cost of solvent, water washes and spill control pillows (35 drums @ $40/drum)	1,400
f. Discharge cost to the city sewer system	260
Subtotal	$3,700
B. Containers	
1. Removal of final waste inventory	
a. Disposal cost (100 drums of various chemicals @ $40/drum)	$ 4,000
b. Plant labor (8 h @ $12/h)	96
c. Hauling (3 trips @ $350/trip)	1,050
d. Disposal of contaminated container storage area decontamination washes (1 trip @ $250/trip)	250
Subtotal	$5,400
C. Waste Pile	
1. Removal of final waste inventory	
a. Disposal cost (50 yd^3 metal hydroxide sludges @ $80/ton)	$ 4,000
b. Plant labor (24 h @ $12/h)	288
c. Hauling (1 trip @ $350/trip)	350
Subtotal	$ 4,700

(continued)

TABLE [illegible] (continued)

	2.	Disposal of contaminated base material, liner, foudnation, and contaminated soil	
		a. Removal (50 tons: 80 h @ $62/h)	$ 4,960
		b. Hauling (2 trips @ $350/trip)	700
		c. Disposal (50 tons @ $80/ton)	4,000
		d. Disposal of residual liquid from sump	250
		Subtotal	$9,900
	3.	Decontamination of equipment	
		a. Rental of steam cleaner (2 day @ $75/day	$ 150
		b. Disposal of decontamination residues (5 drum @ $40/drum)	200
		Subtotal	$ 350
D.	Soil Sampling and Analysis		
	1.	Core samples	$ 400
	2.	Core analyses	600
		Subtotal	$ 1,000
E.	Closure Certification		
	1.	Labor (P.E. 48 h @ $60/h)	$ 2,880
	2.	Expenses (6 days @ $75/day)	450
	3.	Transportation (300 mi @ $0.23/mi	69
		Subtotal	$ 3,400
F.	Subtotal		$44,300
	1.	Plus 15% administration	6,600
	2.	Plus 15% contingencies	6,600
G.	Total Closure Cost		$57,500

[a]1982 dollars.

2. Decontamination of storage tanks, piping, and pile liner. Tanks and piping for the HCl tank will be washed with water, whereas the 1,1,1-trichloroethane tank will be washed with an alcohol wash. After removal of the waste pile, the pile liner will also be removed by plant personnel.

3. Removal of solvent washings. It is estimated that two drums of water wash and two drums of alcohol solvent wash will require disposal. Cost is estimated at $40/drum.

4. Disposal of soil in contaminated area. Although the soil is not expected to be contaminated by the waste storage at Tankopile, an allowance has been made in the closure costs for removal and disposal of approximately 20 yd^3. It is assumed that 1 yd^3 of soil will weigh approximately 1 ton.

5. Closure certification. The cost of certification of closure by a professional engineer (P.E.) is estimated on the basis of a labor rate of $40 per hour and an estimate of other expenses for a 6-day period.

6. Total costs were calculated by adding 15 percent administrative costs and 15 percent for contingencies.

This closure cost estimate will be kept on file at the Tankopile facility. It will be revised whenever a change in the closure plan affects the cost of closure. It will be adjusted annually (from the date of its original development) to reflect changes in closure cost brought about by inflation. The Department of Commerce's Annual Implicit Price Deflator for Gross National Product* will be used to make this adjustment.

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* Published by U.S. Dept. of Commerce in its monthly publication "Survey of Current Business."

I-5 Financial Assurance Mechanism for Closure [40 CFR Sections 122.25(a)(1), 264.143, and 264.150]

I-5a Closure Trust Fund [40 CFR Sections 264.143(a) and 264.151(a)(1)]

Tankopile will establish a closure trust fund as the selected financial assurance mechanism at the Anytown National Bank. An originally signed duplicate of the trust agreement will be sent to the Regional Administrator by certified mail. A copy of the agreement is attached as appendix C. A payment of one-tenth of the estimated closure cost will be deposited annually in this account. Although the expected life of the facility is 20 years, the duration of the permit is expected to be 10 years. Consequently, the payment period will be 10 years.

I-5f Combinations

I-6 Post-Closure Cost Estimate [40 CFR Sections 122.25(a)(16) and 264.144]

Since all wastes will be disposed of offsite, there will be no post-closure activities or costs.

I-7 Financial Assurance Mechanism for Post-Closure [40 CFR Sections 122.25(a)(16) and 264.145]

Since all wastes will be disposed of offsite, there will be no post-closure activities or costs.

I-8 Liability Insurance [40 CFR Sections 122.25(a)(17) and 264.147]

I-8a Sudden Insurance [40 CFR Sections 264.147(a), 264.151(i), and 264.151(j)]

Tankopile has obtained liability insurance for sudden and accidental occurrences in the amount of $1 million per occurrence with an annual aggregate of $2 million exclusive of legal defense costs. An originally signed certificate of liability insurance has been sent to the Regional Administrator by certified mail. The certificate is worded as specified in 40 CFR 264.151(g).

I-8b Nonsudden Insurance [40 CFR 264.147(b), 264.151(i), and 264.151(j)]

Tankopile is a storage facility, therefore, no liability insurance is required for a nonsudden accidental occurrence.

I-8c Financial Test [40 CFR 264.147(f) and 264.151(j)]

Tankopile has an insurance policy for sudden and accidental occurrences, therefore, the financial test is not necessary.

I-8d Variance Procedures [40 CFR Section 264.147(c)]

Tankopile will not request the Regional Administrator for a reduction of liability amounts.

I-8e Adjustment Procedures [40 CFR Section 264.147(d)]

If the Regional Administrator increases the amounts of liability coverage or elects to improve nonsudden liability coverage requirements, Tankopile will immediately seek an adjustment to the insurance policy discussed above.

I-9 State Assumption of Responsibility [40 CFR 264.150]

Tankopile will not request state assumption of the legal or financial responsibilities.

SECTION J

OTHER FEDERAL LAWS

Information will be provided in accordance with the requirements of 40 CFR Part 122.25(a)(20) at the request of the EPA Region I office. At this time, however, we believe this facility is in compliance with the following Federal laws; Wild and Scenic Rivers Act, National Historic Preservation Act of 1966, Endangered Species Act, Coastal Zone Management Act, and the Fish and Wildlife Coordination Act.

CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Date: March 26, 1982 Signature: Mary P. Jones
Mary P. Jones, President

REFERENCES

1. U.S. Department of Commerce. Standard industrial classification manual. 1972 with 1977 supplement.

2. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Environmental Data and Information Service, National Climatic Center, Federal Building, Asheville, North Carolina 28801.

3. U.S. Geological Survey, Topographic Maps. 1100 South Eads Street, Arlington, Virginia 22202.

4. U.S. Geological Survey, Topographic Maps. Box 25286 Federal Center, Denver, Colorado 80225.

5. National Flood Insurance Program. FIA flood maps. P.O. Box 34294, Bethesda, Maryland 20034.

6. Stern, A. C. Air Pollution, Vol. 1, air pollutants, their transformation and transport, 1976.

7. Water Resources Council. Guidelines for determining flood flow frequency. Bulletin No. 17A. Hydrology Committee. Washington, D.C. 1977.

8. Federal Insurance Administration. The floodway: a guide for community officials. Number 4 in the community assistance series. Federal Emergency Management Agency. September 1979.

9. General Facility Standards for Location of Facilities. Background document; Standards applicable to owners and operators of hazardous waste treatment, storage, and disposal facilities under RCRA, Subtitle C, Section 3004. 40 CFR 264, Subpart B, Section 264.18. December 30, 1980.

10. Office of Coastal Zone Management. National Oceanic and Atmospheric Administration, Department of Commerce, Washington, D.C.

11. Dean. L. F. Floodplain development pressures and Federal programs, Part II: Methods used by Federal programs to reduce floodplain development pressures. Research Group, Inc., Atlanta, Georgia. EPA Publication 130/1-79/001B, May 1978.

12. American Petroleum Institute Recommended Rules for Design and Construction of Large, Welded, Low-Pressure Storage Tanks. 6th ed. (current through Revision 2). Standard 620, API 2101 L St., N.W., Washington, D.C. 20037, 1978.

13. American Petroleum Institute. Welded Steel Tanks for Oil Storage. 7th ed. Standard 650.

14. American Water Works Association. Standard for Steel Tanks - Standpipes, Reservoirs, and Elevated Tanks for Water Storage. D100-79. Denver, Colorado, 1979.

15. American Society of Mechanical Engineers. Boiler and Pressure Vessel Code, Section VIII. New York, 1974.

16. Underwriters Laboratories. Standard for Steel Above-ground Tanks for Flammable and Combustible Liquids. 4th ed. Publication UL142. Northbrook, Illinois, 1972.

17. American Society for Testing and Materials. 1981 Annual Book of ASTM Standards, Pressure Vessel (35) Plate and Forging, Part 4.

18. Department of the Army. Flood-Proofing Regulations. EP 1165-2-314. June 1972.

19. Perry, R. H. and C. H. Chilton. Chemical Engineers Handbook. 5th Edition, McGraw-Hill Book Co., 1973.

20. U.S. Department of the Army. Design and construction of levees. 1978.

21. U.S. Bureau of Reclamation. Design of small dams. 1973.

22. Department of the Army. Wall design: floodwalls. 1948. (Note: new edition should be available in fall of 1981.)

23. Tchobanoglous, G. H., Theisen, and R. Eliassen. Solid wastes: enginerring principles and management issues, McGraw-Hill, Inc., New York, New York. 1977.

24. Linsley, R. K., and J. B. Franzinc. Elements of hydraulic engineering. McGraw-Hill Book Company. New York, New York. 1955.

25. Settig, M. Landfill disposal of hazardous wastes and sludges. Noyes Data Corporation. Park Ridge, New Jersey. 1979.

26. American Concrete Institute. ACI Manual of Concrete Practice, Part 2. 1980.

27. Office of Solid Waste Management Programs. Test Methods for evaluating solid waste. Physical/Chemical methods. Environmental Protection Publication SW-846. Washington, U.S. Government Printing Office, 1980.

28. Sax, N. I. Dangerous Properties of Industrial Materials, Van Nostrand Reinhold Co., 1979.

29. National Institute for Occupational Safety and Health. NIOSH/OSHA Occupational health guidelines for chemical hazards, Publication No. 81-123, January 1981.

30. Proctor, N. H., and J. P. Hughes. Chemical hazards of the workplace. 1978.

31. Touhill, Shuckrow and Associates, Inc. Management of hazardous waste leachate. Environmental Protection Publication SW-871. Washington, U.S. Government Printing Office, 1980.

32. Industrial security systems and procedures, book 70-2 of plant protection manual. Plant Engineering. Technical Publishing Co. 1980.

33. National Fire Protection Association (NFPA). Flammable and Combustible Liquids Code. Boston, 1977.

34. National Institute of Occupational Health and Safety. A Guide to Industrial Respiratory Protection. 1976.

35. Fire protection book 70-1 of Plant Protection manual. Plant Engineering. Technical Publishing Co. 1981.

36. Elements of industrial fire control, book 70-5 of plant protection manual. Plant Engineering. Technical Publishing Co. 1980.

37. Schupack, M. How to inspect and evaluate prestressed concrete tanks. Public Works, September 1981. p. 88-89.

38. Valach, D., and A. Gaines. Corrosion monitoring in chlorosolvents plant saves over $60,000 per year. Chemical Processing, March 1981. p. 20.

39. Earley, D. E. Source assessment: Rail tank car, tank truck and drum cleaning - state-of-the-art. Publication EPA-600/2-78-004g. Cincinnati, Ohio, April 1978.

40. California Department of Health Services. Samples and sampling procedures for hazardous waste. Publication EPA-600/2-80-018. January 1980.

41. National Board of Boiler and Pressure Vessel Inspectors. National Board Inspection Code, A manual for boiler and pressure vessel inspectors. 1155 North High Street, Columbus, Ohio. 1973.

42. Matrecon, Inc. Lining of waste impoundment and disposal facilities. Environmental Protection Publication SW-870. Washington, U.S. Government Printing Office, 1980.

43. Tryon, G. H., and G. P. McKinnon. Fire protection handbook, 13th ed. National Fire Protection Association. 1969.

44. Office of Solid Waste Management Programs. Hydrologic simulation on solid waste disposal sites. Environmental Protection Publication SW-868. September 1980.

45. Huibregtse, K. R., et al. Manual for the control of hazardous material spills. Volume I, Spill assessment and water treatment techniques. Publication EPA-600/2-77-227. 1977.

46. OSHA Standards, 29 CFR 1910.

47. U.S. Army Engineer Waterways Experiment Station. Guide to the disposal of chemically stabilized and solidified waste. Environmental Protection Publication SW-872. Environmental Laboratory. Washington, U.S. Government Printing Office, 1980.

48. National Fire Protection Association. Fire protection guide on hazardous materials. 6th ed. 1975.

49. U.S. Environmental Protection Agency. A method for determining the compatibility of hazardous waste. Publication EPA-600/2-80-076. Cincinnati, Ohio, April 1980.

50. Robinson, J. S., Hazardous chemical spill cleanup, Noyes Data Corporation, Park Ridge, N.J., 1979.

51. Environmental Protection Agency Background document - Listing of hazardous wastes. (40 CFR 261) Sections 261.31 and 261.32, and its Appendix A. Health and Environmental Effect Profiles.

52. Weiss, G. Hazardous chemicals data book. Noyes Data, 1981.

53. Smith, A. J., Jr., Managing hazardous substances accidents. McGraw-Hill Book Company, 1981.

54. Acurex Corporation and Metcalf & Eddy, Inc. Closure of hazardous waste surface impoundments. Environmental Protection Publication SW-873. Washington, U.S. Government Printing Office, 1980.

55. Bureau of Law and Business, Inc. Employer's handbook of hazardous waste training programs. Stamford, Connecticut 1982.

56. Southwest Research Institute, Department of Special Studies. Technical Resource Documents - Land Disposal and Other Facilities.

57. American Petroleum Institute. Guide for inspection of refinery equipment, chapter 5, third edition. December 1978. Washington, D.C.

58. National Fire Protection Association. Cleaning small tanks and containers. NFPA No. 327, 1975. Boston, Massachusetts.

59. Financial Assurance for closure and post-closure care: requirements for owners or operators of hazardous waste treatment, storage or disposal facilities. Guidance Document. ICF, Inc., SW-955. May 1982.

APPENDIX A

GENERAL INFORMATION AND HAZARDOUS CHARACTERISTICS OF WASTES

Excerpted from: Dangerous
Properties of Industrial
Materials, Fourth Edition, 1975
by N. Irving Sax

HYDROCHLORIC ACID

General Information

Synonyms: muriatic acid; chlorohydric acid; hydrogen chloride.

Colorless gas or colorless, fuming liquid; strongly corrosive.

Formula: HCl.

Mol wt: 36.47, mp: −114.3°C, bp: −84.8°C, d: 1.639 g/liter (gas) at 0°C; 1.194 at −26°C (liquid), vap. press.: 4.0 atm at 17.8°C.

Hazard Analysis

Toxic Hazard Rating:

- Acute Local: Irritant 3.
- Acute Systemic: Ingestion 3; Inhalation 3.
- Chronic Local: Irritant 2.
- Chronic Systemic: U.

Toxicology: Hydrochloric acid is an irritant to the mucous membranes of the eyes and respiratory tract, and a concentration of 35 ppm causes irritation of the throat after short exposure. Concentrations of 50 to 100 ppm are tolerable for 1 hour. More severe exposures result in pulmonary edema, and often laryngeal spasm. Concentrations of 1,000 to 2,000 ppm are dangerous, even for brief exposures. Mists of hydrochloric acid are considered less harmful than the anhydrous hydrogen chloride, since the droplets have no dehydrating action. In general, hydrochloric acid causes little trouble in industry, other than from accidental splashes and burns. It is used as a general purpose food additive (Section 10). It is a common air contaminant.

Disaster Hazard: Dangerous; see chlorides; will react with water or steam to produce toxic and corrosive fumes.

VINYL ACETATE

General Information

Colorless, mobile liquid, polymerizes to solid on exposure to light.

Formula: $CH_3COOCHCH_2$.

Mol wt: 86.05, mp: −100.2°C, bp: 73°C, flash p.: 18°F, d: 0.9335 at 20°C, autoign. temp.: 800°F, vap. press.: 100 mm at 21.5°C, lel = 2.6%, uel = 13.4%, vap. d.: 3.0.

Hazard Analysis

Toxic Hazard Rating:

- Acute Local: Irritant 1.
- Acute Systemic: Inhalation 1.
- Chronic Local: Irritant 1.
- Chronic Systemic: U.

Toxicology: May act as a skin irritant by its defatting action. High concentrations of vapor are narcotic but are formed only if an inhibitor is present.

Fire Hazard: Highly dangerous when exposed to heat or flame.

Spontaneous Heating: No.

Explosion Hazard: Unknown.

Disaster Hazard: Dangerous; when heated to decomposition, it burns and emits acrid fumes; can react with oxidizing materials.

α-TRICHLOROETHANE

General Information

Synonyms: 1,1,1-trichloroethane; methyl chloroform.

Colorless liquid.

Formula: CH_3CCl_3.

Mol wt: 133.42, bp: 74.1°C, fp: −32.5°C, flash p.: none, d: 1.3492 at 20°/4°C, vap. press.: 100 mm at 20.0°C.

Hazard Analysis

Toxic Hazard Rating:

- Acute Local: Irritant 1; Ingestion 1.
- Acute Systemic: Inhalation 2.
- Chronic Local: Irritant 1.
- Chronic Systemic: Ingestion 1; Inhalation 1.

Toxicity: Narcotic in high concentrations.

Disaster Hazard: Dangerous; See chlorides.

VINYL CHLORIDE

General Information

Synonyms: chloroethylene; chloroethene.

Colorless liquid or gas (when inhibited); faintly sweet odor.

Formula: CH_2CHCl.

Mol wt: 62.50, bp: −13.4°C, lel = 4%, uel = 22%, flash p.: −108°F (C.O.C.), bp: −13.9°C, fp: −159.7°C, d liquid: 0.9195 at 15°/4°C, vap. press.: 2600 mm at 25°C, vap. d.: 2.15, autoign. temp.: 882°F.

Hazard Analysis

Toxic Hazard Rating:

- Acute Local: Irritant 2.
- Acute Systemic: Inhalation 2.
- Chronic Local: Irritant 2.
- Chronic Systemic: Inhalation 3.

Toxicology: In high concentrations it acts as an anesthetic. Causes skin burns by rapid evaporation and consequent freezing. Chronic exposure has shown liver injury in rats and rabbits. Circulatory and bone changes in the finger tips reported in workers handling unpolymerized materials. A recognized carcinogen (Section 8), of the liver.

Caution: May cause local irritation or frostbite due to rapid evaporation from skin or tissues.

Fire Hazard: Dangerous, when exposed to heat or flame. Large fires of this material are practically inextinguishable.

Spontaneous Heating: No.

Explosion Hazard: Severe, in the form of vapor when exposed to heat or flame.

Disaster Hazard: Very dangerous; when heated to decomposition, it emits highly toxic fumes of phosgene; can react vigorously with oxidizing materials. Before storing or handling this material instructions for its use should be obtained from the supplier.

TOXIC HAZARD RATING CODE (For detailed discussion, see Section 9.)

0 **NONE**: (a) No harm under any conditions; (b) Harmful only under unusual conditions or overwhelming dosage.

1 **SLIGHT**: Causes readily reversible changes which disappear after end of exposure.

2 **MODERATE**: May involve both irreversible and reversible changes not severe enough to cause death or permanent injury.

3 **HIGH**: May cause death or permanent injury after very short exposure to small quantities.

U **UNKNOWN**: No information on humans considered valid by authors.

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LEAD

General Information

Synonym: plumbum.

Bluish-gray, soft metal.

Formula: Pb

At wt: 207.21, mp: 327.43°C, bp: 1620°C, d: 11.288 at 20°/20°C, vap. press.: 1 mm at 973°C.

Hazard Analysis

Toxic Hazard Rating:

Acute Local: 0.

Acute Systemic: Inhalation 3.

Chronic Local: 0.

Chronic Systemic: Ingestion 3; Inhalation 3.

Toxicology: See lead compounds. A common air contaminant. It is a suspected carcinogen of the lungs and kidney (Section 8).

Radiation Hazard: For permissible levels, see Section 5, Table 5. Artificial isotope ^{203}Pb, T½ = 52h. Decays to stable ^{203}Tl by electron capture. Emits γ's of 0.40 MeV and X-rays. Natural isotope ^{210}Pb (Radium-D, Uranium Series), T½ = 21y. Decays to radioactive ^{210}Bi by emitting β's of 0.015 (81%), 0.061 (19%) MeV. Also emits γ's of 0.046 MeV. ^{210}Pb usually exists in equilibrium with its daughters ^{210}Bi and ^{210}Po. Natural isotope ^{212}Pb (Thorium-B, Thorium Series), T½ = 10.6h. Decays to radioactive ^{212}Bi by emitting β's of 0.16 (5%), 0.34 (81%), 0.58 (14%) MeV. Also emits γ's of 0.24, 0.30 MeV and X-rays.

Fire Hazard: Moderate, in the form of dust when exposed to heat or flame. See also powdered metals.

Explosion Hazard: Moderate, in the form of dust when exposed to heat or flame.

Disaster Hazard: Dangerous; when heated it emits highly toxic fumes; can react vigorously with oxidizing materials.

CHROMIUM COMPOUNDS

Hazard Analysis

Toxic Hazard Rating:

Acute Local: Irritant 3; Ingestion 3; Inhalation 3.
Acute Systemic: U.
Chronic Local: Irritant 3; Ingestion 3; Inhalation 3.
Chronic Systemic: Ingestion 3; Inhalation 3.

Toxicology: Chromic acid and its salts have a corrosive action on the skin and mucous membranes. The lesions are confined to the exposed parts, affecting chiefly the skin of the hands and forearms and the mucous membranes of the nasal septum. The characteristic lesion is a deep, penetrating ulcer, which, for the most part, does not tend to suppurate, and which is slow in healing.

Small ulcers, about the size of a matchhead or end of a lead pencil may be found, chiefly around the base of the nails, on the knuckles, dorsum of the hands and forearms. These ulcers tend to be clean, and progress slowly. They are frequently painless, even though quite deep. They heal slowly, and leave scars. On the mucous membrane of the nasal septum the ulcers are usually accompanied by purulent discharge and crusting. If exposure continues, perforation of the nasal septum may result, but produces no deformity of the nose. Chromate salts are recognized carcinogens of the lungs, nasal cavity and paranasal sinus also experimental carcinogen of the stomach and larynx (Section 8).

Hexavalent compounds are said to be more toxic than the trivalent. Eczematous dermatitis due to trivalent chromium compounds has been reported.

LEAD COMPOUNDS

Hazard Analysis

Toxic Hazard Rating:
Acute Local: 0
Acute Systemic: Ingestion 3, Inhalation 3
Chronic Local: 0
Chronic Systemic: Ingestion 3, Inhalation 3, Skin Absorption 3

Toxicology: Lead poisoning is one of the commonest of occupational diseases. The presence of lead-bearing materials or lead compounds in an industrial plant does not necessarily result in exposure on the part of the workman. The lead must be in such form, and so distributed, as to gain entrance into the body or tissues of the workman in measurable quantity, otherwise no exposure can be said to exist. It is a suspected carcinogen of the lungs and kidneys (Section 8).

Mode of entry into body:

1. By inhalation of the dusts, fumes, mists or vapors. (Common air contaminants)

2. By ingestion of lead compounds trapped in the upper respiratory tract or introduced into the mouth on food, tobacco, fingers or other objects.

3. Through the skin: this route is of special importance in the case of organic compounds of lead, as lead tetraethyl. In the case of the inorganic forms of lead, this route is of no practical importance.

Physiological Action and Toxicity: When lead is ingested, much of it passes through the body unabsorbed, and is eliminated in the feces. The greater portion of the lead that is absorbed is caught by the liver and excreted, in part, in the bile. For this reason, larger amounts of lead are necessary to cause poisoning if absorption is by this route, and a longer period of exposure is usually necessary to produce symptoms. On the other hand, when lead is inhaled, absorption takes place easily from the respiratory tract and symptoms tend to develop more quickly. From the point of view of industrial poisoning, inhalation of lead is much more important than is ingestion.

Lead is a cumulative poison. Increasing amounts build up in the body and eventually a point is reached where symptoms and disability occur. Lead produces a brittleness of the red blood cells so that they hemolyze with but slight trauma; the hemoglobin is not affected. Due to their increased fragility, the red cells are destroyed more rapidly in the body than normally, producing an anemia which is rarely severe. The loss of circulating red cells stimulates the production of new young cells which, on entering the blood stream, are acted upon by the circulating lead, with resultant coagulation of their basophilic material. These cells after suitable staining, are recognized as "stippled cells." As regards the effect of lead on the white blood cells, there is no uniformity of opinion. In addition to its effect on the red cells of the blood, lead produces a damaging effect on the organs or tissues with which it comes in contact. No specific or characteristic lesion is produced. Autopsies of deaths attributed to lead poisoning and experimental work on animals, have shown pathological lesions of the kidneys, liver, male gonads, nervous system, blood vessels and other tissues. None of these changes, however, have been found consistently.

In cases of lead poisoning, the amount of lead found in the blood is frequently in excess of 0.07 mg per 100 cc of whole blood. The urinary lead excretion generally exceeds 0.1 mg per liter of urine.

The toxicity of the various lead compounds appears to depend upon several factors: (1) the solubility of the compound in the body fluids; (2) the fineness of the particles of the compound, solubility is greater, of course, in proportion to the fineness of the particles; (3) conditions under which the compound is being used, where a lead compound is used as a powder, contamination of the atmosphere will be much less where the powder is kept damp. Of the various lead compounds, the carbonate, the monoxide and sulfate are considered to be more toxic than metallic lead or other lead compounds. Lead arsenate is very toxic due to the presence of the arsenic radical.

Signs and Symptoms: Industrial lead poisoning commonly occurs following prolonged exposure to lead or its compounds. The common clinical types of lead poisoning may be classified according to their clinical picture as (a) alimentary, (b) neuromotor, and (c) encephalic. Some cases may show a combination of clinical types. The alimentary type occurs most frequently, and is characterized by abdominal discomfort or pain. Severe cases may present actual colic. Other complaints are constipation and/or diarrhea, loss of appetite, metallic taste, nausea and vomiting, lassitude, insomnia, weakness, joint and muscle pains, irritability, headache and dizziness. Pallor, lead line on the gums, pyorrhea, loss of weight, abdominal tenderness, basophilic stippling, anemia, slight albuminuria, increased urinary excretion, and an increase in the lead content of the whole blood, are signs which may accompany the above symptoms.

In the neuromuscular type, the chief complaint is weakness, frequently of the extensor muscles of the wrist and hand, unilateral or bilateral. Other muscle groups which are subject to constant use may be affected. Gastroenteric symptoms are usually present, but are not as severe as in the alimentary type of poisoning. Joint and muscle pains are likely to be more severe. Headache, dizziness and insomnia are frequently prominent. True paralysis is uncommon, and usually is the result of prolonged exposure.

Lead encephalopathy is the most severe but the rarest manifestation of lead poisoning. In the industrial worker it follows rapid and heavy lead absorption. Organic lead compounds, such as tetraethyl lead, are absorbed rapidly through the skin as well as through the lungs, and are selectively absorbed by the central nervous system. The clinical picture in these cases is usually an encephalopathy. With inorganic lead compounds, comparable concentrations in the central nervous system are reached only when the workplace is heavily contaminated with vapor, fume and dust. Encephalopathy begins abruptly, and is characterized by signs of cerebral and meningeal involvement. There is usually stupor, progressing to coma, with or without convulsion, and often terminating in death. Excitation, confusion and mania are less common. In milder cases of short duration, there may be symptoms of headache, dizziness, somnolence and insomnia. The cerebrospinal pressure may be increased. See also specific compound.

Diagnosis: A diagnosis of lead poisoning should not be made on the basis of any single clinical or laboratory finding. There must be a history of significant exposure, signs, and symptoms (as described above) compatible with the diagnosis, and confirmatory laboratory tests. Increase of stippled red blood cells, mild anemia, and elevated lead in blood and urine, i.e., more than 0.07 mg/100 ml blood and similar values per liter of urine. An increase of coproporphyrins and certain amino acids in urine may be present. Diagnostic mobilization of lead with calcium EDTA may be useful in questionable cases.

Treatment of Lead Poisoning: It has been found that the chelating agent, calcium ethylenediaminetetracetate, and related compounds are highly efficacious in removing absorbed lead from the tissues of the body. (The therapeutic agents of this group are also known as versene, versenate, edathamil and Ca EDTA.)

Ca EDTA is effective only when administered intravenously. Various dosage schedules have been proposed. An effective regime is 3 to 6 grams of Na Ca EDTA in 300 cc to 500 cc of 5 percent glucose by intravenous drip over a period of 3 to 8 hours. Treatment may be given daily for 5 to 10 days with an interval of one week between courses. Another plan is to give treatment at intervals of 3 to 5 days until deleading has been accomplished.

Disaster Hazard: See lead.

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APPENDIX B

INSPECTION LOG SHEETS

MONITORING EQUIPMENT INSPECTION LOG SHEET

Inspector's name/title ____________ / ____________
Date of inspection ____________ (month/day/year)
Time of inspection ____________ (military time)

Item	Types of problems	Status (✓)		Observations	Date and nature of repairs/remedial action
		Acceptable	Unacceptable		
Liquid level transmitters (tanks)	Transmitter signal, electrical circuitry, power				
Conservation vents (tanks)	Spring adjustment or sticking				
Leachate detection, collection, and removal system (waste pile)	Broken pipe or connection, lack of gravel in pipes, clogged holes in pipe, angle of drainage, ground water collected, sump pump failure				
Ground water table control system (waste pile)	Broken pipe or connection, lack of gravel in pipe, clogged holes in pipe, angle of drainage				
Runoff collection and removal system (waste pile)	Broken pipe or connection, lack of gravel in pipe, clogged holes in pipe, angle of drainage, sump pump failure				
Ground water table water meter (located in sump)	Clogging, malfunction of digital display, rotor sticking, wearing of gears				

Figure B-1. Monitoring equipment inspection log sheet.

SAFETY AND EMERGENCY EQUIPMENT INSPECTION LOG SHEET

Inspector's name/title ____________ / ____________

Date of Inspection ____________ (month/day/year)

Time of Inspection ____________ (military time)

Item	Types of problems	Status (✓)		Observations	Date and nature of repairs/remedial action
		Acceptable	Unacceptable		
Standard industrial absorbents (Sorb-All, Vermiculite, etc.)	Out of stock				
Sandbags	Torn or worn				
Sand	Out of stock				
Absorbent boom	Out of stock				
Absorbent pads	Out of stock				
Straw	Out of stock				
Submersible pump	Power, clogging				
Flexible hoses with quick couple fittings	Cracks or holes, fittings stick				
55-gallon drums (steel, stainless steel)	Corrosion, structural damage				
Emergency shower and eyewash	Water pressure, leaking, drainage				
Face shields and extra protection eyeglasses	Broken or dirty equipment				
Disposable respirators	Out of stock				
Chemical cartridge respirators with cartridges for organic vapors and acid gases; half and full face types	Spent chemical adsorbent, seals				

Figure B-2. Safety and emergency equipment inspection log sheet.

Figure B-2(continued)

Item	Types of problems	Status (√)		Observations	Date and nature of repairs/remedial action
		Acceptable	Unacceptable		
Chest-mounted gas mask cannisters	Cannisters become exhausted				
Self-contained breathing apparatus (SCBA)	Air quantity in reserve, air delivery system, moisture in tank (cold weather)				
Portable sump pump	Power, clogging				
Fire blankets	Dispensing				
Fire extinguishers	Needs recharging				
Fire alarm system	Power failure				
Telephone system	Power failure				
Public address system	Power failure, speakers				
Generators	Fuel supply, spark plugs, oil				
Emergency lighting system	Battery failure, lights				
First aid equipment and supplies	Items out of stock or inoperative				
Steam cleaner	Water supply, fuel supply				
Protective clothing (impermeable full-body coveralls, gloves, and foot coverings)	Holes, normal wear and tear				
Decontamination facility (showers, dirty room, clean room)	Water pressure, leaking, drainage, upkeep				

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SECURITY DEVICES INSPECTION LOG SHEET

Inspector's name/title ______________ / ______________

Date of Inspection ______________ (month/day/year)

Time of Inspection ______________ (military time)

Item	Types of problems	Status (√)		Observations	Date and nature of repairs/remedial action
		Acceptable	Unacceptable		
Facility fence	Corrosion, damage to chain link fence or barbed wire				
East gate (main entrance)	Corrosion, damage to chain link fence or barbed wire				
West gate and lock	Corrosion, damage to chain link fence or barbed wire, sticking or corroding lock				
Container storage area fence	Corrosion, damage to chain link fence or barbed wire				
Container storage area gate and lock	Corrosion, damage to chain link fence or barbed wire; sticking or corroding lock				
Remote control to east gate	Transmitter or receiver; sticking of gate				
Two-way radios	Transmitter or receiver				

Figure B-3. Security devices inspection log sheet.

OPERATING AND STRUCTURAL EQUIPMENT INSPECTION LOG SHEET

Inspector's name/title ______________ / ______________

Date of inspection ______________ (month/day/year)

Time of inspection ______________ (military time)

Item	Types of problems	Status (✓)		Observations	Date and nature of repairs/remedial action
		Acceptable	Unacceptable		
Sump pumps (automatic)	Setting adjustment, power, clogging				
Sump pumps (manual)	Power, clogging				
Dikes	Cracks, deterioration				
Bases or foundations	Erosion; uneven settlement; cracks and spalling in concrete pads, base rings and piers; deterioration of water seal between tank bottom and foundation, wet spots				
Ramps	Erosion, uneven settlement, cracks and spalling in concrete				
Sump areas	Erosion, uneven settlement, cracks and spalling in concrete, wet spots				
Tank structural supports	Concrete deterioration and cracking, corrosion of pipe supports				
Piping to holding tanks	Loss of metal thickness, leaks, corrosion, or deterioration				
Holding tanks	Corrosion, discoloration, cracks, buckles, and bulges				

Figure B-4. Operating and structural equipment inspection log sheet.

CONTAINER STORAGE AREA INSPECTION LOG SHEET

Inspector's name/title ______________/______________

Date of inspection ______________ (month/day/year)

Time of inspection ______________ (military time)

Item	Types of problems	Status (✓)		Observations	Date and nature of repairs/remedial action
		Acceptable	Unacceptable		
Container placement and stacking	Aisle space, height of stacks				
Sealing of containers	Open lids				
Labeling of containers	Improper identification, date missing				
Containers	Corrosion, leakage, structural defects				
Segregation of incompatible wastes	Storage of incompatible wastes in same area				
Pallets	Damaged (e.g., broken wood, warping, nails missing)				
Fence, gate and lock	Corrosion, damage to chain link fence, sticking or corroding lock				
Base or foundation	Cracks, spalling, uneven settlement erosion, wet spots				
Dikes	Cracks, deterioration				
Sump area	Cracks, spalling, uneven settlement erosion, wet spots				
Sump pumps (automatic)	Setting adjustment, power, clogging				

Figure B-5. Container storage area inspection log sheet.

Figure B-5(continued,

Item	Types of problems	Status (✓)		Observations	Date and nature of repairs/remedial action
		Acceptable	Unacceptable		
Debris and refuse	Clog sump pump, aesthetics, possible reaction with leaks				
Ramps	Cracks, spalling, uneven settlement, erosion				
Warnings signs	Damaged				

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TANK STORAGE AREA AND ANCILLARY EQUIPMENT INSPECTION LOG SHEET

Inspector's name/title ____________ / ____________
Date of inspection ____________ (month/day/year)
Time of inspection ____________ (military time)

Item	Types of problems	Status (✓)		Observations	Date and nature of repairs/remedial action
		Acceptable	Unacceptable		
Dike	Cracks, deterioration				
Base or foundation	Cracks, spalling, uneven settlement, erosion, wet spots				
Sump pump (manual)	Power, clogging				
Sump area	Cracks, spalling, uneven settlement, erosion, wet spots				
Warning signs	Damaged				
Pipes	Loss of metal thickness, leaks, corrosion, or deterioration				
Valves	Loss of metal thickness, leaks, corrosion, or deterioration				
Fittings	Loss of metal thickness, leaks, corrosion, or deterioration				
Overfill control valve (manual)	Loss of metal thickness, leaks, corrosion, or deterioration, sticking, damaged handle				

Figure B-6. Tank storage area and ancillary equipment inspection log sheet

EXTERNAL TANK INSPECTION LOG SHEET

Inspector's name/title ______________ / ______________

Date of inspection ______________ (month/day/year)

Time of inspection ______________ (military time)

Item	Types of problems	Status (✓)		Observations	Date and nature of repairs/remedial action
		Acceptable	Unacceptable		
Ladder	Damaged, structural stability				
Foundation/structural supports	Cracks, spalling uneven settlement, erosion, wet spots				
Pipe connections	External corrosion, cracks, distortion				
Protective coating	Rust spots, blisters, film lifting				
Tank shell	Corrosion, discoloration, cracks, buckles, bulges				
Tank roof	Malfunction of seals, blockage of water drains on roof, corrosion				
Tank bottom	Corrosion, discoloration, cracks, buckles, bulges				
Anchor bolts	Distortion, corrosion				
Nozzles	Cracks, corrosion				

Figure B-7. External tank inspection log sheet.

INTERNAL TANK INSPECTION LOG SHEET

Inspector's name/title ______________ / ______________

Date of inspection ______________ (month/day/year)

Time of inspection ______________ (military time)

Item	Types of problems	Status (✓)		Observations	Date and nature of repairs/remedial action
		Acceptable	Unacceptable		
Tank roof	Malfunction of roof's seals, corrosion, loss of metal thickness				
Internal supports	Deterioration, depressions				
Tank shell	Corrosion of vapor space, and liquid level line, cracking, bulges, holes, loss of metal thickness, seams				
Tank bottom	Corrosion pits, sprung seams, rivets, depressions, bottom thickness, unevenness of bottom				
Plate joints	Cracking				
Nozzle connection joints	Cracking				
Glass lining	Cracking, bubbles				
Rivets	Tightness, corrosion				
Pipecoil support	Depressions				

Figure B-8. Internal tank inspection log sheet.

WASTE PILE AREA INSPECTION LOG SHEET

Inspector's name/title ____________ / ____________

Date of inspection ____________ (month/day/year)

Time of inspection ____________ (military time)

Item	Types of problems	Status (✓)		Observations	Date and nature of repairs/remedial action
		Acceptable	Unacceptable		
Run-on diversion ditch	Obstructions to flow, bank erosion, loose riprap				
Entrance road and guard rails	Loss of gravel, fugitive emissions, corrosion and tightness of guard rails				
Runoff diversion canal and drain	Obstructions, drain clogged				
Wind dispersal control system	Frequency of water application, dryness and slope of pile				
Foundation	Cracks or breaks				
Synthetic liner	Tears, holes, separation of layers, thin spots, cracks, shrinkage, hardness, excessive permeability, blisters				
Base	Erosion, exposed area to liner, depth				
Liner seams	Tear, tightness of seam				
Joints	Tightness of connection				

Figure B-9. Waste pile area inspection log sheet.

APPENDIX C

TRUST AGREEMENT

Trust Agreement

Trust Agreement, the "Agreement," entered into as of July 10, 1982 by and between Mary P. Jones, a Rhode Island corporation, the "Grantor," and John Victor, an Anytown National Bank, the "Trustee".

Whereas, the United States Environmental Protection Agency, "EPA," an agency of the United States Government, has established certain regulations applicable to the Grantor requiring that an owner or operator of a hazardous waste management facility shall provide assurance that funds will be available when needed for closure and/or post-closure care of the facility.

Whereas, the Grantor has elected to establish a trust to provide all or part of such financial assurance for the facilities identified herein.

Whereas, the Grantor, acting through its duly authorized officers, has selected the Trustee to be the trustee under this agreement, and the Trustee is willing to act as trustee.

Now, Therefore, the Grantor and the Trustee agree as follows:

Section 1. Definitions. As used in this Agreement:

(a) The term "Grantor" means the owner or operator who enters into this Agreement and any successors or assigns of the Grantor.

(b) The term "Trustee" means the Trustee who enters into this Agreement and any successor Trustee.

Section 2. Identification of Facilities and Cost Estimates. This Agreement pertains to the facilities and cost estimates identified on attached Schedule A [on Schedule A, for each facility list the EPA Identification Number, name, address, and the current closure and/or post-closure cost estimates, or portions thereof, for which financial assurance is demonstrated by this Agreement].

Section 3. Establishment of Fund. The Grantor and the Trustee hereby establish a trust fund, the "Fund," for the benefit of EPA. The Grantor and the Trustee intend that no third party have access to the Fund except as herein provided. The Fund is established initially as consisting of the property, which is acceptable to the Trustee, described in Schedule B attached hereto. Such property and any other property subsequently transferred to the Trustee is referred to as the Fund, together with all earnings and profits thereon, less any payments or distributions made by the Trustee pursuant to this Agreement. The Fund shall be held by the Trustee, IN TRUST, as hereinafter provided. The Trustee shall not be responsible nor shall it undertake any responsibility for the amount or adequacy of, nor any duty to collect from the Grantor, any payments necessary to discharge any liabilities of the Grantor established by EPA.

Section 4. Payment for Closure and Post-Closure Care. The Trustee shall make payments from the Fund as the EPA Regional Administrator shall direct, in writing, to provide for the payment of the costs of closure and/or post-closure care of the facilities covered by this Agreement. The Trustee shall reimburse the Grantor or other persons as specified by the EPA Regional Administrator from the Fund for closure and post-closure expenditures in such amounts as the EPA Regional Administrator shall direct in writing. In addition, the Trustee shall refund to the Grantor such amounts as the EPA Regional Administrator specifies in writing. Upon refund, such funds shall no longer constitute part of the Fund as defined herein.

Section 5. Payments Comprising the Fund. Payments made to the Trustee for the Fund shall consist of cash or securities acceptable to the Trustee.

Section 6. Trustee Management. The Trustee shall invest and reinvest the principal and income of the Fund and keep the Fund invested as a single fund, without distinction between principal and income, in accordance with general investment policies and guidelines which the Grantor may communicate in writing to the Trustee from time to time, subject, however, to the provisions of this Section. In investing, reinvesting, exchanging, selling, and managing the Fund, the Trustee shall discharge his duties with respect to the trust fund solely in the interest of the beneficiary and with the care, skill, prudence, and diligence under the circumstances then prevailing which persons of prudence, acting in a like capacity and familiar with such matters, would use in the conduct of an enterprise of a like character and with like aims; *except that:*

(i) Securities or other obligations of the Grantor, or any other owner or operator of the facilities, or any of their affiliates as defined in the Investment Company Act of 1940, as amended, 15 U.S.C. 80a–2.(a), shall not be acquired or held, unless they are securities or other obligations of the Federal or a State government;

(ii) The Trustee is authorized to invest the Fund in time or demand deposits of the Trustee, to the extent insured by an agency of the Federal or State government; and

(iii) The Trustee is authorized to hold cash awaiting investment or distribution uninvested for a reasonable time and without liability for the payment of interest thereon.

Section 7. Commingling and Investment. The Trustee is expressly authorized in its discretion:

(a) To transfer from time to time any or all of the assets of the Fund to any common, commingled, or collective trust fund created by the Trustee in which the Fund is eligible to participate, subject to all of the provisions thereof, to be commingled with the assets of other trusts participating therein; and

(b) To purchase shares in any investment company registered under the Investment Company Act of 1940, 15 U.S.C. 80a–1 et seq., including one which may be created, managed, underwritten, or to which investment advice is rendered or the shares of which are sold by the Trustee. The Trustee may vote such shares in its discretion.

Section 8. Express Powers of Trustee. Without in any way limiting the powers and discretions conferred upon the Trustee by the other provisions of this Agreement or by law, the Trustee is expressly authorized and empowered:

(a) To sell, exchange, convey, transfer, or otherwise dispose of any property held by it, by public or private sale. No person dealing with the Trustee shall be bound to see to the application of the purchase money or to inquire into the validity or expediency of any such sale or other disposition;

(b) To make, execute, acknowledge, and deliver any and all documents of transfer and conveyance and any and all other instruments that may be necessary or appropriate to carry out the powers herein granted;

(c) To register any securities held in the Fund in its own name or in the name of a nominee and to hold any security in bearer form or in book entry, or to combine certificates representing such securities with certificates of the same issue held by the Trustee in other fiduciary capacities, or to deposit or arrange for the deposit of such securities in a qualified central depositary even though, when so deposited, such securities may be merged and held in bulk in the name of the nominee of such depositary with other securities deposited therein by another person, or to deposit or arrange for the deposit of any securities issued by the United States Government, or any agency or instrumentality thereof, with a Federal Reserve bank, but the books and records of the Trustee shall at all times show that all such securities are part of the Fund;

(d) To deposit any cash in the Fund in interest-bearing accounts maintained or savings certificates issued by the Trustee, in its separate corporate capacity, or in any other banking institution affiliated with the Trustee, to the extent insured by an agency of the Federal or State government; and

(e) To compromise or otherwise adjust all claims in favor of or against the Fund.

Section 9. Taxes and Expenses. All taxes of any kind that may be assessed or levied against or in respect of the Fund and all brokerage commissions incurred by the Fund shall be paid from the Fund. All other expenses incurred by the Trustee in connection with the administration of this Trust, including fees for legal services rendered to the Trustee, the compensation of the Trustee to the extent not paid directly by the Grantor, and all other proper charges and disbursements of the Trustee shall be paid from the Fund.

Section 10. Annual Valuation. The Trustee shall annually, at least 30 days prior to the anniversary date of establishment of the Fund, furnish to the Grantor and to the appropriate EPA Regional Administrator a statement confirming the value of the Trust. Any securities in the Fund shall be valued at market value as of no more than 60 days prior to the anniversary date of establishment of the Fund. The failure of the Grantor to object in writing to the Trustee within 90 days after the statement has been furnished to the Grantor and the EPA Regional Administrator shall constitute a conclusively binding assent by the Grantor, barring the Grantor from asserting any claim or liability against the Trustee with respect to matters disclosed in the statement.

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Section 11. Advice of Counsel. The Trustee may from time to time consult with counsel, who may be counsel to the Grantor, with respect to any question arising as to the construction of this Agreement or any action to be taken hereunder. The Trustee shall be fully protected, to the extent permitted by law, in acting upon the advice of counsel.

Section 12. Trustee Compensation. The Trustee shall be entitled to reasonable compensation for its services as agreed upon in writing from time to time with the Grantor.

Section 13. Successor Trustee. The Trustee may resign or the Grantor may replace the Trustee, but such resignation or replacement shall not be effective until the Grantor has appointed a successor trustee and this successor accepts the appointment. The successor trustee shall have the same powers and duties as those conferred upon the Trustee hereunder. Upon the successor trustee's acceptance of the appointment, the Trustee shall assign, transfer, and pay over to the successor trustee the funds and properties then constituting the Fund. If for any reason the Grantor cannot or does not act in the event of the resignation of the Trustee, the Trustee may apply to a court of competent jurisdiction for the appointment of a successor trustee or for instructions. The successor trustee shall specify the date on which it assumes administration of the trust in a writing sent to the Grantor, the EPA Regional Administrator, and the present Trustee by certified mail 10 days before such change becomes effective. Any expenses incurred by the Trustee as a result of any of the acts contemplated by this Section shall be paid as provided in Section 9.

Section 14. Instructions to the Trustee. All orders, requests, and instructions by the Grantor to the Trustee shall be in writing, signed by such persons as are designated in the attached Exhibit A or such other designees as the Grantor may designate by amendment to Exhibit A. The Trustee shall be fully protected in acting without inquiry in accordance with the Grantor's orders, requests, and instructions. All orders, requests, and instructions by the EPA Regional Administrator to the Trustee shall be in writing, signed by the EPA Regional Administrators of the Regions in which the facilities are located, or their designees, and the Trustee shall act and shall be fully protected in acting in accordance with such orders, requests, and instructions. The Trustee shall have the right to assume, in the absence of written notice to the contrary, that no event constituting a change or a termination of the authority of any person to act on behalf of the Grantor or EPA hereunder has occurred. The Trustee shall have no duty to act in the absence of such orders, requests, and instructions from the Grantor and/or EPA, except as provided for herein.

Section 15. Notice of Nonpayment. The Trustee shall notify the Grantor and the appropriate EPA Regional Administrator, by certified mail within 10 days following the expiration of the 30-day period after the anniversary of the establishment of the Trust, if no payment is received from the Grantor during that period. After the pay-in period is completed, the Trustee shall not be required to send a notice of nonpayment.

Section 16. Amendment of Agreement. This Agreement may be amended by an instrument in writing executed by the Grantor, the Trustee, and the appropriate EPA Regional Administrator, or by the Trustee and the appropriate EPA Regional Administrator if the Grantor ceases to exist.

Section 17. Irrevocability and Termination. Subject to the right of the parties to amend this Agreement as provided in Section 16, this Trust shall be irrevocable and shall continue until terminated at the written agreement of the Grantor, the Trustee, and the EPA Regional Administrator, or by the Trustee and the EPA Regional Administrator, if the Grantor ceases to exist. Upon termination of the Trust, all remaining trust property, less final trust administration expenses, shall be delivered to the Grantor.

Section 18. Immunity and Indemnification. The Trustee shall not incur personal liability of any nature in connection with any act or omission, made in good faith, in the administration of this Trust, or in carrying out any directions by the Grantor or the EPA Regional Administrator issued in accordance with this Agreement. The Trustee shall be indemnified and saved harmless by the Grantor or from the Trust Fund, or both, from and against any personal liability to which the Trustee may be subjected by reason of any act or conduct in its official capacity, including all expenses reasonably incurred in its defense in the event the Grantor fails to provide such defense.

Section 19. Choice of Law. This Agreement shall be administered, construed, and enforced according to the laws of the State of [insert name of State].

Section 20. Interpretation. As used in this Agreement, words in the singular include the plural and words in the plural include the singular. The descriptive headings for each Section of this Agreement shall not affect the interpretation or the legal efficacy of this Agreement.

In Witness Whereof the parties have caused this Agreement to be executed by their respective officers duly authorized and their corporate seals to be hereunto affixed and attested as of the date first above written. The parties below certify that the wording of this Agreement is identical to the wording specified in 40 CFR 264.151(a)(1) as such regulations were constituted on the date first above written.

Mary P. Jones,

President, Tankopile Finishing Co. Inc.

John Vicora

President, Anytown National Bank